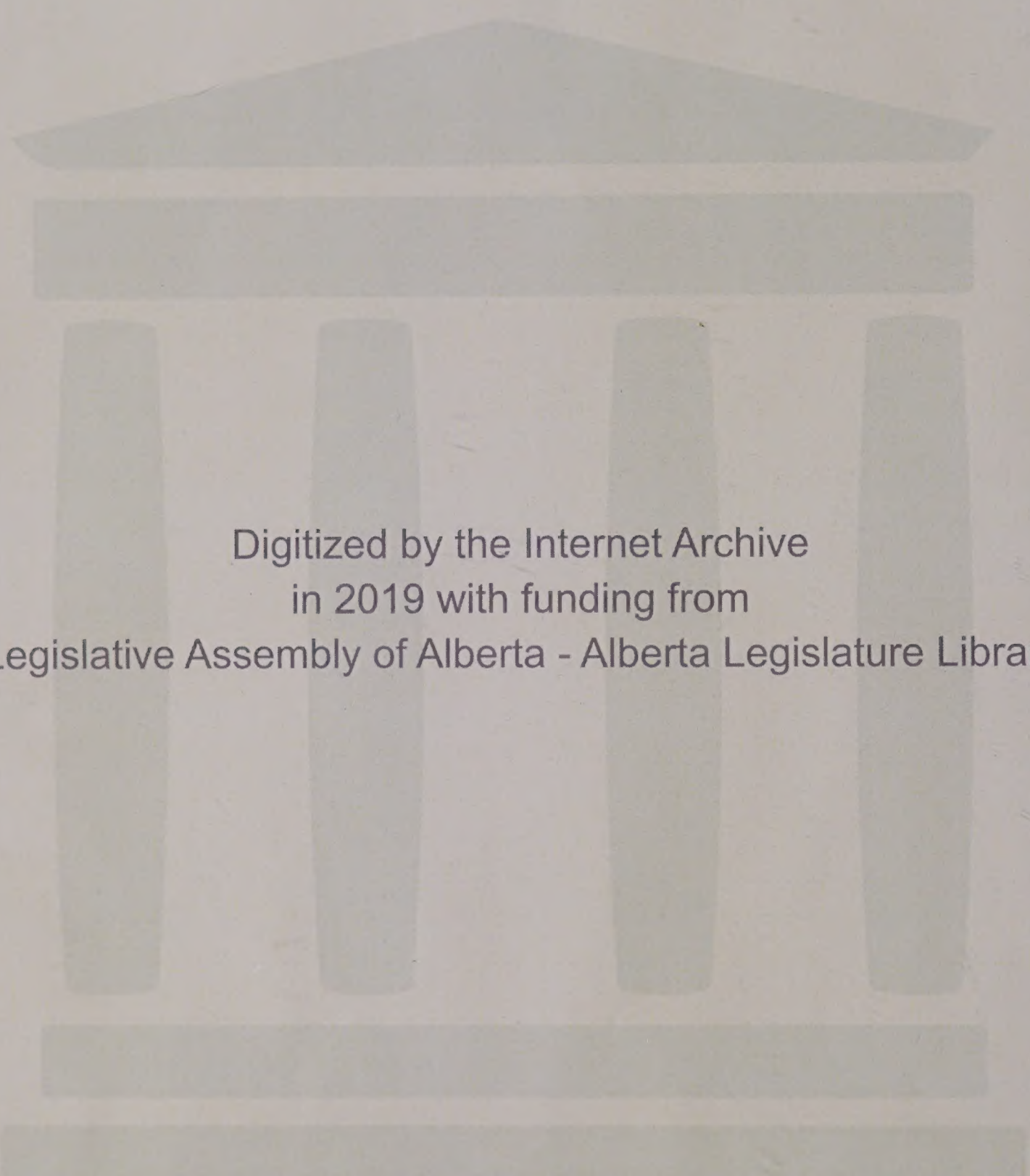




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IN THE MATTER OF THE PUBLIC
INQUIRIES ACT
AND
IN THE MATTER OF A COMMISSION, DATED THE
12TH DAY OF OCTOBER, A.D. 1938, TO INQUIRE
INTO MATTERS CONNECTED WITH PETROLEUM
AND PETROLEUM PRODUCTS

FINAL REPORT
RE
PIPE LINE MATTERS



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W. J. Foster

The Province of Alberta



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IN THE MATTER OF THE PUBLIC INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the
12th day of October, A.D. 1938, to inquire
into matters connected with Petroleum
and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE MCGILLIVRAY
(Chairman)

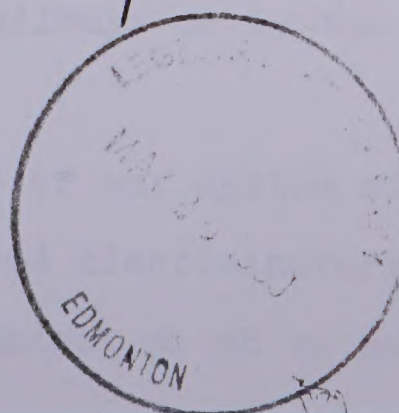
—and—

L. R. LIPSETT, ESQ.

FINAL REPORT

re

PIPE LINE MATTERS



FINAL REPORT re PIPE LINE MATTERS

TO:

His Honour,

The Lieutenant-Governor of the Province of Alberta.

We have the honour to make a final report with respect to pipe line matters.

In our Interim Report of March 23rd, 1939, we recommended that The Royalite Oil Company Limited and Imperial Oil Limited be declared to be Common Carriers, and that as such Common Carriers these Companies be brought under the control of the Board of Public Utility Commissioners of Alberta. We learn that the legislation necessary to bring this about has been enacted.

In this connection it may be pointed out that the necessity for control of persons engaged in the transportation of oil by pipe line was recognized in the United States of America in the passage of the Hepburn Act in 1906. It is reported that this Act was passed in response to abuses of monopolistic power in the petroleum industry in that country.

In Canada a regulatory Board has long since controlled the activities of the Common Carriers, the Dominion railways. That administrative body was brought into being in response to public demand for recognition of realities emerging from unrestrained private enterprise. The wisdom of granting administrative control over this type of Carrier is not now questioned, either by the railways or by the people of this country.

The primary objective of any system of regulation is to prevent unreasonable and discriminatory rates and practices. The power of control which we have recommended

is nothing more than a power to maintain a proper relationship between the carriers of oil and the users of their service in the public interest.

In recommending administrative control in an economic sphere and in recommending that mandatory powers be given to a regulatory body, we do not seek to destroy the fundamentals of private enterprise and of individual initiative. In our view it is quite possible to safeguard the public interest by regulatory measures, and at the same time to allow to this private enterprise a measure of managerial freedom of action which is limited only by an enforced recognition of public responsibility in the carrying out of the public duties of Common Carriers. There can, of course, be no clean-cut dividing line between the field of management and the field of regulation, but proper administrative control does not necessarily involve the refusal of fair financial rewards to those whose property is declared to be a public utility for public use.

The power to regulate should not be used as a power to destroy, and it seems to us that granted an efficient and economical system, no person should be required to perform the public service of a Common Carrier at a loss. Failure to recognize this principle would assure that capital required in the public interest would not be attracted into the industry, and in the end it would have the effect of discrediting administrative control.

Regulation in the field of economic conduct is comparatively new; it has been advanced by methods of trial and error; it is as easy as it is dangerous for impatient legislative or regulatory bodies to fall into the errors of rate making without due consideration and of fixing service

rates which have the effect of destroying much needed private enterprise and thus do the public harm in their zeal to do the public good.

Having said so much as to the dangers inherent in unfair dealing with private property which, because of its peculiar relation to public interest has had imposed upon it the weight of public regulation, we desire to point out with equal emphasis that from the very fact that the business of Common Carriers is in its nature such as to be of public concern, the public are entitled to expect that unfair and discriminatory practices, if any, will be stopped and that rates will be regulated so as to prevent exorbitant charges being made for the service rendered. The very purpose of Regulation is to see to it, particularly in the case of a monopoly such as The Royalite Oil Company Limited and the Imperial Oil Limited now enjoy in respect of Pipe Line operations, that the owner does not have and does not exercise an undue advantage over his customers to the direct or indirect disadvantage of the public. So far back as 1810, in the case of *Allnut v. Inglis*, 12 East 527, at Page 573, Lord Ellenborough, C. J., in speaking of warehouses and warehousemen, said:-

" There is no doubt that the general principle is favored, both in law and justice, that every man may fix what price he pleases upon his own property or the use of it; but if for a particular purpose the public have a right to resort to his premises and make use of them, and if he have a monopoly in them for that purpose, if he will take the benefit of that monopoly, he must, as an equivalent, perform the duty attached to it on reasonable terms."

In the same case Mr. Justice Le Blanc said
(P. 541):-

" But though this be private property, yet the principle laid down by Lord Hale attached upon it, that when private property is affected with a public interest, it ceases to be *juris privati* only; and, in case of its dedication to such a purpose as this, the owners cannot take arbitrary and excessive duties, but the duties must be reasonable."

As has been stated, the Carriers above mentioned enjoy a monopoly at the present time. This undoubtedly has had some effect in bringing about the present rates of 15 cents per barrel for gathering and transporting and 5 cents for loading on to tank cars, which, in our opinion, are too high.

It must be said, however, in favour of these Carriers that in the past they have from time to time voluntarily reduced their pipe line rates. It is, perhaps, a problem for the future and a matter of concern for a permanent regulatory body rather than for this Commission, but it may not be amiss for us to point out that competition can only come with the sanction of the Board of Public Utility Commissioners under The Pipe Line Act, and that where there is control by a regulatory body, competition may only serve to duplicate investment and service unnecessarily with the result that the competitors cannot continue without financial disaster in the absence of a rate which the public should not be called upon to pay. We need not say more concerning the possible effects of competition which does not now exist.

In our Interim Report we suggested that a new system of accounting be insisted upon in respect of pipe line matters.

The whole movement for utility accounting reform in the United States can be said to have arisen because prior systems of accounts did not serve to provide essential information speedily. A regulatory body cannot properly perform its functions unless there is readily available to it all of the accounting information as to the utility's operations and financial results.

In the case of the utility with which we are concerned it is quite clear that there should be complete accounting records of all pipe line activities of the Carrier Companies, which are kept separate and distinct from the records of all other activities of these companies, that these records should be kept in the manner directed by the Board of Public Utility Commissioners and that they should be available for inspection in the Province of Alberta at all times hereafter. In our view all of the foregoing should be insisted upon by the Board of Public Utility Commissioners as a condition to the granting or continuing of the pipe line permit.

Public Ownership on the one hand and Public Regulation under private ownership on the other in one sense may, perhaps, be said to be but alternative methods of control. However, in the absence of evidence of abuses which may not be fully met by the control of a regulatory body, we unhesitatingly recommend the continuance of private ownership with Public Regulation in respect of the Common Carriers with which we are concerned. In our opinion public control of Common Carriers which assures a fair measure of managerial freedom is to be preferred to either unrestrained private ownership on the one hand or public ownership on the other.

Our concept of our duty is to try to arrive at a rate to be recommended which will provide to the owners a fair return upon the value of an efficient and economical system which is put to public use and which will at the same time be such as to insure to the public that no more is required to be paid for the service rendered than that service is reasonably worth.

The whole problem of rate making is, as will appear, a most perplexing and difficult one. After reading much that has been written upon the subject, we subscribe to that part of the foreword to be found in Mr. L. R. Nash's book on Public Utility Rate Structures, in which the author says:-

" The successful builder of rate structures must be primarily a philosopher rather than a technician."

The first step in rate making is to settle upon the items which are to be included in the rate base.

In our opinion a list of those items should include:-

(1) All physical assets which are now "used and useful" in connection with the pipe line system, which provides the service in respect of which a service rate is to be recommended.

In this connection we shall have something to say as to the efficient yet economical substitute plant.

(2) Administration and overhead construction costs.

We are of the opinion that it is proper to capitalize a portion of the salaries of those officers and employees who were partly engaged in planning and supervising construction work during the construction period. Something more than labour and materials goes into the creation of a pipe line system.

(3) Going value.

We use these words in the sense in which they were used by Mr. Justice Day in delivering the opinion of the Court in the Supreme Court of the United States, in the case Des Moines Gas Co. v. City of Des Moines, 238, U. S. 153 in which case he said:

" That there is an element of value in an assembled and established plant, doing business and earning money, over one not thus advanced, is self-evident.

(4) Working Capital.

In our opinion a sum calculated on a basis of what is reasonable in the way of anticipated needs should be allowed, to provide for operating expenses in advance of the collection of outstanding accounts.

Having mentioned that which in our opinion should be taken into account in fixing a rate base, we now turn to the vexed question of how to make proper valuation for rate making purposes.

In the book, Public Utility Regulation, by Wilson Herring and Eutsler, with good reason the authors say:-

"The area of greatest intensity in the storm of controversy over valuation of public utility property is in the use of conflicting theories of economics, conflicting decisions and orders of administrative regulatory bodies, and conflicting decisions and dicta of courts to support or to refute one or another of the various bases of valuation. It has been well stated that "the 'facts' of the case in hand have opened the way

for decisions which have both approved and dis-approved every major economic theory of valuation which has yet been advanced."

The measures of value most commonly used can be divided into two groups.

The first of these groups relates to the value of the property at the time of its construction, including:

1. The original cost of the property.
2. The book cost.
3. The historical cost.
4. The prudent investment cost.
5. The investment cost measured by outstanding securities.

The second group of measures of value pertains to the value of the property at the time the valuation is made. This group of measures of value includes:

1. The reproduction cost value.
2. The reproduction cost value less depreciation.
3. The split inventory value.
4. Taxation value.
5. Market value.
6. Purchase value."

The first commission in the United States having jurisdiction over local public utilities functioned in Massachusetts in 1885. Since then the number of commissions has increased to such an extent that there is now not more than one State without some form of State-wide regulation by commission, and practically all of these commissions have jurisdiction over rates. One would think that in this period of time there would have been not only some standardization of regulatory laws but that some formula for determining

values for rate-base purposes would have been generally accepted. The fact is, however, that no such formula has been evolved. In the book on Public Utility Regulation last referred to it is said:-

"Valuation is a Matter of Judgment.-- One trend that can be traced is that toward recognition of the principle that valuation is not a matter of formula or formulae but a problem involving the exercise of judgment by a body of qualified experts upon the basis of evidence of value submitted to them in proceedings before them."

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". It would appear, therefore, that despite the ardent quest of economists, engineers, legislators, and jurists for a valuation formula, rule, or guide, pursued for the last quarter century or more, the law of the land, as interpreted by the Supreme Court, is that valuation is not a matter of formula but one of judgment."

But assuming that valuation is a matter of judgment it is not to be thought that the judgment may be a whimsical one. Consideration must be given to certain elements of value and any conclusions as to value must be based upon some method of calculation leading to such conclusions. Different methods of approach to rate making will generally give different results. If then a rate is to be arrived at which will give a fair return to the owner of the utility without overcharging the Customer for the service rendered, the importance of a proper method of valuing for rate base purposes cannot be over estimated.

We come then to a consideration of the two groups of methods of valuation and as a premise to what we have to say concerning that, it may be well to point out that in the United States there has been a great controversy between those who say that value should be determined with reference to the present cost of construction or estimated present cost of reproducing the property, and those who advocate the use of original cost as a basis for arriving at the fair value of property for rate-base purposes. There has been a collateral dispute as to whether present cost of construction or cost of reproduction should be based upon the cost of reproducing the identical plant or a substitute plant capable of performing the same service. There has also been a dispute as to whether the basis of value should be original cost, historical cost, prudent investment and so forth. In the main, however, the dispute has been between those who would consider present labour and material costs entering into construction whether of the same or a substitute plant, and those who would only look at the labour and material costs existing at the time of original construction. It is quite obvious that value based on original cost and value based on present cost of construction may be quite different and so it has become one of the first duties of your Commissioners to examine into the position in the United States from which most of the legal literature relating to administrative bodies comes. We think that it may be safely said, that of the two main bases commonly relied on in fixing values for the rate base, the original cost method associated with prudent investment has been generally preferred by regulatory commissions. This is understandable because by this method when complete accounting records are available a value is

easily determined. This value so arrived at may or may not be present value. It may be said with equal certainty that the reproduction new less depreciation method of arriving at present value has at all times been insisted upon as an element to be considered if indeed not given dominant weight in arriving at a rate base by the Supreme Court of the United States. In fact, there appears to be little doubt that the original cost method with its modification of prudent investment would have been adopted long since by regulatory bodies throughout the United States were it not for the Supreme Court's annulment of orders of regulatory bodies which did not take present value into account in rate making.

It is to be noticed that the United States Supreme Court has interfered with the orders of administrative bodies solely on Constitutional grounds, and so a consideration of the Constitutional provisions relied upon as justifying intervention is important.

The Fifth Amendment to the federal Constitution, ratified in 1791, provides that:

"No person shall be held to answer for a capital, or other wise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property without due process of law; nor shall private property be taken for public use without just compensation."

The Fourteenth Amendment, ratified in 1868, provides that:-

" Section 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

Having regard to these constitutional provisions the Supreme Court of the United States felt that it was incumbent upon it to see to it that regulatory bodies did not confiscate that which they were only authorized to regulate as would be, in its opinion, the case if the Utilities regulated obtained anything less than a fair rate based upon fair value. Fair value, in the opinion of the Court oft expressed, cannot be arrived at without regard to present value. Although it has been thought necessary to consider the reported cases it seems unnecessary that in this report we should enter upon a discussion of all the cases following the famous case of *Smyth v. Ames*, 169, U.S. 466, decided in 1898. It will serve our present purpose to refer to but a few of the Supreme Court cases commencing with the comparatively recent case of *St. Louis & O'Fallon R.R. Co. v. United States of America*, 279 U.S. 461, decided in 1929, in which case the *Smyth v. Ames* case is re-affirmed,

the subsequent cases to the date of that decision referred to and a trite statement of the law under the United States Constitution given.

In this case the Commission, whose decision as to rate-making was called in question, was bound by Statute to give due consideration to all of the elements of value recognized by the law of the land for rate-making purposes. The Court found that the Commission had refrained from giving due consideration to present or reproduction costs in estimating the value of the carrier's property, and so the Court nullified the challenged order.

We quote from the judgment of Mr. Justice McReynolds the following:-

" The elements of value recognized by the law of the land for rate-making purposes" have been pointed out many times by this Court.....(cases cited). Among them is the present cost of construction or reproduction.

" Thirty years ago *Smyth v. Ames*, supra, announced:

" We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular

rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth."

"In *Missouri ex rel. Southwestern Bell Teleph. Co. v. Public Serv. Commission*, *supra*, (262 U. S. 287) we said: 'It is impossible to ascertain what will amount to a fair return upon properties devoted to public service without giving consideration to the cost of labor, supplies, etc. at the time the investigation is made. An honest and intelligent forecast of probable future values made upon a view of all the relevant circumstances is essential. If the highly important element of present costs is wholly disregarded such a forecast becomes impossible. Estimates for tomorrow cannot ignore prices of today.'

"The doctrine above stated has been consistently adhered to by this Court."

If further authority be needed to show that "Fair Value" under the decisions of the United States Supreme Court involves the consideration of present value, the

following cases may be referred to:-

In the Minnesota Rates Case, 230 U. S. 352-454, it was said:-

" The making of a just return for the use of the property involves the recognition of its fair value if it be more than its cost. The property is held in private ownership and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law."

In the case of United Railway and Electric v. West 230 U. S. 234 (1930) Mr. Justice Sutherland, speaking for the Supreme Court said:-

" It is the settled rule of this Court that the rate base is present value."

In the case of McCardle vs. Indianapolis Water Company, 272 U. S. 400, Mr. Justice Butler says:

" If the tendency or trend of prices is not definitely upward or downward and it does not appear probable that there will be a substantial change of prices, then the present value of lands plus the present cost of constructing the plant, less depreciation, if any, is a fair measure of the value of the physical elements of the property."

In the case West v. Chesapeake & Potomac Telephone Coy. 295 U. S. 662, not only is the Rule as to present value again stated, but the ground upon which this rule rests is disclosed. In the opinion of the majority, delivered by Mr. Justice Roberts, the following appears:-

" The established principle is that as the due process clauses (Amendments Five and Fourteen) safeguard private property against a taking for public use without just compensation, neither Nation nor State may require the use of privately owned property without just compensation.

When the property itself is taken by the exertion of the power of eminent domain, just compensation is its value at the time of the taking. So where by legislation prescribing rates or charges the use of the property is taken, just compensation assured by these constitutional provisions is a reasonable rate of return upon that value."

".....It is true that any just valuation must take into account changes in the level of prices. We have therefore held that where the present value of property devoted to the public service is in excess of original cost, the utility company is not limited to a return on cost. Conversely, if the plant has depreciated in value, the public should not be bound to allow a return measured by investment. Of course, the amount of that investment is to be considered along with appraisal of the property as presently existing, in order to arrive at a fair conclusion as to present value, for actual cost, reproduction cost and all other elements affecting value are to be given their proper weight in the final conclusion."

It is to be observed that it is "present value" that is stressed in the above case and that original cost is relegated to the position of being used

only to the extent that it is useful in arriving at present value. It is also to be observed that the reasoning which leads to this result is rested solely upon the constitutional prohibition against confiscation.

In this Inquiry we have before us calculations made by Messrs. Harvey and Morrison, Accountants, predicated upon the original cost of assets now used and useful; calculations made by Messrs. Price, Waterhouse and Company, accountants, based upon moneys actually invested, and calculations by Messrs. Ford, Bacon and Davis, Engineers, based upon cost of reproduction less depreciation. These different calculations lead to entirely different results.

It seems to us that we must first decide as to whether or not a fair present rate can be arrived at in the present circumstances without regard to present value. We have no hesitancy in saying that no matter how reached present value must be ascertained for rate-base purposes if a fair present rate is the aim of the rate-maker.

Now, if prudent investment be assumed, original cost provides a figure not only of original value but of present value as well if there be no change in conditions or in price levels in the meantime but where as in this Inquiry there is reliable evidence as to original cost and as to present value which are entirely different and the difference is not accounted for by depreciation then it is to be assumed that there has been a change in conditions or in labor and material costs which accounts for the difference.

One thing is certain, that if a rate-maker proposes to use present value in arriving at a rate-base neither original cost nor original investment will serve his purposes in the absence of evidence of unchanged conditions and of unchanged construction costs.

Our reasons for accepting the view that in the circumstances we must find present value for rate-base purposes may be shortly stated. In the first place we have the high authority of the Supreme Court of the United States for saying that in rate-making to be fair to the owner of the utility at least up to the point of avoiding confiscation present value must be taken into account.

We do not forget that the Supreme Court has also said that original cost should be taken into account. As to this we think it enough to say that if present value is that which is sought and it appears that original cost and present value are different then original cost must be discarded on the ground that there can be no reconciliation of irreconcilables.

Then again, it seems to us that the fact that the utilities are now for the first time being brought under the control of a regulatory body on the recommendation of your Commissioners, is to be taken into account. It may be that in the future, a first rate-base being now determined, a regulatory body might well for the sake of simplicity and convenience dispense with engineering appraisals in further rate-making and adopt original cost methods treating the rate-base now arrived at as being original cost but this would be justifiable only because all capital additions and improvements would then be made with full knowledge

on the part of the investors that the rate of return accorded to them would be in the discretion of the Public Utilities Board. It seems to us that the present position is quite different. Here a utility which had enjoyed freedom from interference from any outside body is for the first time subjected to regulatory rates. In the case of future capital additions or improvements as stated the investment is made when the investor's eyes are open to how the return upon his money will be measured. In the case in which a utility is being regulated for the first time it is to be remembered that the capital already invested was invested prior to Government announcement of rate control.

There is something to be said for the view that a fair rate would be one that does not serve to destroy the property values which immediately prior to control reflected the reasonable expectation of investors. We do not go that far because we think that doing the very best anyone can do for the investor, there can be no adjustment of the rate for public service in the public interest that generally speaking will entirely avoid disappointment to security holders. As to this it may be said, firstly that the Pipe Line Act provides for the regulation of rates and secondly that when investment is made in the business of "Common Carriers" it is or should be known by those investing that they are investing in property which is to be put to a public use and affected with a public interest, and which will in all likelihood be the subject of regulation in the public interest. This does not mean, however, that if this comes to pass the user of the utility

is to get a better rate than one that is fair and to that end have a rate fixed upon the basis of value as it was any given number of years before.

We may also point out that on the original cost basis if a utility is constructed during a high cost period the owner is entitled to collect a return upon original cost, notwithstanding a subsequent fall of the general price level. In other words, under the original cost doctrine which insures an investor a constant return upon his investment temporary high prices and high interest rates could be successfully projected into the future. On this theory all utility plant construction and additions would be made during peak price periods and the users would have to pay an annual charge for a service which could be reproduced for, perhaps, half the annual charge which they are called upon to endure. On the other hand if a utility were constructed during a low cost period upon the original cost theory the investor would be prevented from earning a return on more than his original investment even though owing to changed conditions the plant had trebled in value and even though no substitute plant, if presently erected, could perform the service at anything like the rates prescribed on the original cost basis.

We think that the conclusion is inescapable; that at least in the case of Common Carriers presently brought under the control of a regulatory body, a present rate must be rested upon a rate-base which includes the present value of the physical properties.

In adopting this view we feel that we not only have the support of the Supreme Court of the United States but

also at least the implied approval of the Judicial Committee of the Privy Council in the case International Railway Company vs. Niagara Parks Commission (1937) 3 All. E. R. 181.

We do not say that the evidence as to original cost was not pertinent. Such evidence has the stamp of approval of the Supreme Court of the United States. It may be used as a check on other methods of valuation and it may be relied on when the evidence as to reproduction cost is considered unworthy of acceptance. See the case of the Railroad Commission of California vs. Pacific Gas and Electric Coy. 302 U. S. 388. For these reasons it was the duty of Counsel to introduce evidence of original cost. It is, we think, our duty to reject it as the sole means of finding the value of physical properties for rate-base purposes when it is shown that it does not accord with acceptable evidence as to present value.

We now turn to the evidence which bears upon the present value of the physical properties. Exhibit "96" is a report of the Engineering Company of Messrs. Ford, Bacon & Davis to Royalite Oil Company Limited, dated December 31st, 1938, which was verified by the witness Edgar G. Hill, Vice President and Director of this engineering company. We quote from that report as follows:

"Summary of Valuation."

The valuation of the physical property of the Division as of December 31st, 1938, is summarized as follows:-

Pipe Line Division

Summary Classified by Accounts

<u>Classification</u>	<u>New</u>	Estimated Cost of Reproduction As of Dec. 31, 1938
		<u>Less Depreciation.</u>
Land	\$ 2,437	\$ 2,437
Rights of Way	16,196	16,196
Field Gathering Lines	320,476	305,516
Field Gathering Pumps	60,264	47,907
Water Pumps	2,650	1,590
Tanks	147,100	117,980
Pumping Stations	156,823	149,945
Trunk Pipe Lines	579,016	564,145
Oil and Fire Lines	49,735	47,248
Miscellaneous Equipment	17,948	12,834
Miscellaneous Structures	29,647	24,427
Automotive Equipment	13,341	9,970
Furniture and Fixtures	3,663	3,663
Total	\$1,399,296	\$1,303,858
General Overhead Costs (10%)	139,930	130,386
Total	\$1,539,226	\$1,434,244
Working Capital and Mater- ials and Supplies	80,000	80,000
Total	\$1,619,226	\$1,514,244

Note: Above totals include full cost of items of property and construction in process of construction and installation as of December 15, 1938. Such incomplete construction will normally be finished by December 31, 1938. "

These valuations were made and the Report prepared by the witness Hill. He says that the method adopted for the valuation of the physical assets is what is termed Cost of Reproduction less depreciation, that is to say observed depreciation is deducted from the cost of reproduction, new, in order to arrive at an estimate of reproducing the property in the condition in which it now is.

In addition to the items above listed this Engineer-
ing Company allows for a very substantial addition being made

thereto, under the heading "Value as a going concern."

We again quote from the report:-

" The Pipe Line Division of the Royalite Oil Company, Ltd. is a going concern which has been in successful operation for more than ten years, although it has been considered as a separate Division of the Company only since January 1, 1938. It is the principal gatherer and transporter of crude oil and naphtha in the Turner Valley field. Its property is well maintained and efficiently operated by experienced men all of whom have had many years of service with the Company.

In the opinion of the Engineers the small amount of physical depreciation found to exist in the property does not measurably detract from its service value.

The Division receives the benefit of the utility services such as electric power and light, water, steam, sanitation and repair shop facilities provided by the parent company at Turner Valley. While a proportion of the operating expenses of these utilities has been allocated to the Division, the Engineers have not attempted to allocate to the Division any of the parent Company's investment in these facilities. If they did not exist the Division would have to provide them and their cost necessarily would be included in any valuation of the Division. The investment of the parent Company in these utilities is substantial, approximating \$1,000,000.

For all of these reasons the Division has, in the Engineers' opinion, a value as a going concern

which is in excess of the depreciated value of its physical assets plus working capital. This value as a going concern, necessarily a matter of judgment, is fixed by the Engineers at a minimum of \$1,700,000 at December 31, 1938."

If there is deducted from this last mentioned figure of \$1,700,000. the sum of \$1,514,244, the amount fixed by Mr. Hill as reproduction cost less depreciation, it will be seen that the amount allowed as "going concern" value is \$185,756.

Dealing first with the physical property and leaving aside for the time being the matter of depreciation we then have on the basis of Mr. Hill's valuation the following:-

Physical property	\$1,399,296
Overhead Costs (including administration)	139,930
Working Capital, Material and Supplies	80,000
Going Value	<u>185,756</u>
	<u>\$1,804,982</u>

In addition to Mr. Hill's evidence as to reproduction cost new less depreciation we have the evidence of Mr. L. L. Plotkins as to what an efficient and economical substitute plant would cost. Mr. Plotkins is a refiner and widely experienced in all branches of the oil industry. We quote from his statement which was made Exhibit "200" the following:

"Value of System (basis table page 99)

31.3 miles of trunk line @ \$10,000.00 per mile	\$ 313,000.00
73.4 miles gathering line \$2,112.00 per mile	156,000.00
Tanks, pumps, equipment, buildings, boiler, water and general utilities	175,000.00
Working capital and supplies	<u>56,000.00</u>
	<u>\$700,000.00</u>

The table referred to in Mr. Plotkins' statement is found in the book "Accounting for the Petroleum Industry" by Morland and McKee, published in 1925.

We are not prepared to go the length of accepting Mr. Plotkins' figures, based in the main as they are upon calculations made from the estimates of others as to the cost of constructing plants of the character under consideration. These writers for all we know may have at this time entirely different opinions from those expressed in the articles upon which Mr. Plotkins relies. Then again we have not had the benefit of seeing these authors in the witness box under examination and cross-examination and so we are not able to decide either as to their ability or their credibility.

We are impressed with what Mr. Plotkins has said to the effect that there is no need for three pipe lines and we are inclined to think, with him, that one pipe line of greater size would serve the purpose of the three present lines at less cost. There is support for this view in the evidence of Mr. Hull. There is no doubt that the first line was put in by the Royalite Oil Company Limited to serve its parent company, the Imperial Company, that the other line was merely taken over from the Regal

Company as a matter of business expediency for a debt, and that the third line was put down merely to supplement the other two as distinguished from putting down a line which would perform the work of the present three lines. It is also clear that one of these lines is in the main used for naphtha, but it is established that when occasion demands it is used for both naphtha and crude oil, and that this operation is considered to be a perfectly proper one.

Notwithstanding all that Mr. Plotkins has said, supported as he is in part by the evidence of Mr. Hull, we are of the opinion that we have not heard evidence of a conclusive character which establishes that the cost of a satisfactory substitute trunk line of greater dimensions would cost any named sum or any named percentage less than the depreciated value placed on the lines now in operation. As Commissioners, it is our duty to act upon evidence and in the absence of concrete evidence establishing this to our satisfaction we will not assume that a substitute line of equal capacity, efficiency, and durability would cost less than the amount of the depreciated value of the present lines.

If we had satisfactory proof that an efficient substitute line could be built for a less amount of money than the amount settled upon as the depreciated value of the existing lines we should be forced to consider how far we would go in reducing the amount of the present value of these lines for rate-base purposes.

We do not depart from the view that present value must go into the rate-base but we do not on that account

say that present value means the present value of an obsolete system which, if included in the rate-base, would cause the users of the line to pay more than the service is worth when measured by the cost of like services in competitive fields. Not only have we no concrete acceptable evidence as to how much a substitute line would cost but we have no evidence as to rates in comparable competitive fields and so were it not that we are to be followed by a permanent regulatory body which is probably entitled to the benefit of our views upon rate-making, we would consider this examination of the position taken up by Mr. Plotkins an idle one. As it is, we think, we should point out that the cases in the Supreme Court of the United States which seem to point to an opposite conclusion are distinguishable upon constitutional grounds. The Supreme Court of the United States would appear to consider itself bound to give fair present value to the existing utility and to avoid the constitutional prohibition against confiscation, and this would appear to be so regardless of the result in the matter of the Service Rate. It is true that the Supreme Court has said in effect that the consumer should not be expected to pay more than the service is reasonably worth but inasmuch as a service rate cannot be said to be good or bad without regard to the rate-base to which the rate of return is to be applied, it would seem that the "fair return" which the Supreme Court insists upon must be predicated upon a present value that is at all cost fair to the utility owner up to the point where it is not confiscatory. Now we are not functioning under the Constitution of the

United States, and we are not bound by the decisions of the Supreme Court of the United States. We do not venture to express an opinion as to whether or not under the Constitution of the United States the Supreme Court is on sound ground in applying eminent domain principles to rate cases. We do, however, unhesitatingly express the opinion that in Canada a Regulatory body is not bound in the absence of Statutory Direction to attribute to a utility property for rate-base purposes a value greater than that of an economical substitute plant that would be able to render service as efficiently as is done by the old plant.

We are commanded to find what is a fair and equitable rate, and so we are very much concerned with arriving at a rate that is fair to the owner of the utility, but not at all cost because we are equally concerned with arriving at a rate that is fair to the users of the utility and there is no constitutional bar to our being fair to the users of the utility, even though the utility owner is deprived of a return which is based on the present reconstruction cost of the plant under consideration. We are prepared to go even further and say that the consideration of a fair service rate to the user is the dominant consideration. If in putting forward this view we depart from the decisions of the Supreme Court of the United States, we do so with great respect, but this is to be said, that nowhere in their decisions do we find a clear intimation that the Supreme Court would not have accepted this view were it not for the Constitutional bar that prevents. All regulation, generally speaking,

presupposes monopoly, and the idea of regulating rates at all is to prevent those who are of necessity users of a public utility from being overcharged. In other words, regulation is necessary in the case of a Public service monopoly not to raise rates - private enterprise would attend to that - but to correct what has been described as economic maladjustment as a result of overcharging for the kind of public service rendered. In this view, regulation is justifiable on social grounds as a means of correcting a wrong economic relationship, and in the absence of legal bars there can be in our view no justification for a regulatory body not effecting that correction whether the result be confiscatory or not. If the basis of value had to be reconstruction value of an expensive plant when a much less expensive plant would serve as well, then there could be no such adjustment and the users of necessity would have to pay a rate upon an inflated rate-base or, in other words, a higher rate than the service could command in a competitive field and so a higher rate than the service is worth.

Having made these observations we return to a consideration of the rate-base.

It is to be observed that in the report, Exhibit "95", the witness Hill does not deal with the capital cost of those assets which the Pipe Line Department of the Carrier Companies has used in common with other departments of these companies. For some reason he has chosen to deal with these assets as part of the going value as shown by that part of his report before quoted. Mr. Hill's evidence upon the point when being examined by Counsel for the Carrier Companies is as follows:-

"Q Now, Mr. Hill, in this report there is nothing contained in your appraisal as to the utilities?

A No sir.

Q Now what do we mean by utilities?

A We mean the services of electric energy and water, furnishing of sanitation, as sewerage, septic tanks, and what not, the furnishing of warehouse space and storage and machine shop facilities. Those services are all provided to this Division by the parent, that is the Royalite Company, from its existing facilities at Turner Valley, which are not owned, and no part of it has been transferred to the books of the Pipe Line Division.

Q And generally used with the others?

A The service of these utilities is furnished, is jointly used by all divisions of the Royalite Oil Company, but they are not owned by the Pipe Line Division and secondly my appraisal covered only properties that were pointed out to me as being owned by the Division. I made no inclusion in my appraisal other than as a normal going value for the fact that the Company had the service of those utilities without making any of the investments which those utilities entailed.

Q In a word, your appraisal does not reflect the capital cost of those utilities?

A It does not.

Q But it does take into consideration the going value of this pipe line operation?

A It does.

Q Now if you are wrong about including it as part of the going value, then am I right in suggesting to you that they would have to be put back as part of the capital cost?

A There should be an allocation made, that is if this Commission or whatever regulatory body that fixes this rate base, does not see fit to allow any going value for this Company on account of the fact that it does enjoy this service, then it would seem to me that it must necessarily make an allocation of the capital cost of those utilities, and apportion some part of it to the Pipe Line Division for inclusion in the rate base.

Q Otherwise the Division would have to build its own utilities?

A Yes."

Under examination by Commission Counsel, Mr. Hill said this:-

"Q MR. FRAWLEY: Now I want to call your attention to what I think is of some value. The utilities, I think it was agreed, I do not know how much, but I understand it is agreed or it is suggested that the total value of the utilities and service units of the Company are in round figures \$1,000,000.00.

A I think that is correct.

Q And \$186,000.00 would be 18.6% of the utilities? Do you agree that is a fair percentage?

A Well I did not make that computation, but it

happens arithmetically that is so. I have attempted to make no allocation and I would not want to make a snap judgment. It happens it works out here that way. But that is not my calculation."

Treating the utilities as roughly one million as counsel did this percentage as a percentage pretty well checks with Mr. Morrison's accountancy conclusion. We can think of no good reason why this sum which is in round figures, \$186,000.00, should not be added to the values attaching to physical assets, and taken into account in fixing depreciation.

We now turn to a consideration of the intangibles before entering upon a discussion of depreciation.

With regard to working capital we think that the sum of \$80,000.00 which Messrs. Ford, Bacon & Davis in their report and Mr. Hill in his evidence thinks proper to be allowed for working capital and material and supplies is a fair one. We are prepared to accept this amount as a fair allowance and to include it in the rate-base.

With regard to administration and overhead cost during the period of construction, the evidence is not satisfactory, but on the whole we are of the opinion that the sum contended for by Mr. Hill, namely, 10 per cent of the reproduction cost new of the physical assets, but without applying that percentage to land and rights of way, is not out of line with the many decisions as to this, and should be included in the rate-base.

With regard to "going value" that intangible which is most difficult to value, it might be enough to say that the amount that Mr. Hill has claimed should go into the rate-base under this head has gone into the rate-base under

another head but we think that his reasons for putting this sum under the head of going value should not be passed over without comment.

A reference to the Engineers report and in particular the part before quoted will show that Mr. Hill speaks of successful operation. In the case Galveston Electric Co. vs. Galveston, 258 U. S. 383, the Supreme Court of the United States held that because a business has been brought to successful operation does not justify the inclusion of a going concern value in the rate-base. It would appear from Mr. Justice Brandeis' judgment that the cost of establishing a system as an operating system is to be found in the overhead expenses. What the master allowed and what the Court disapproved was an allowance under the head of going concern of "the cost of developing the operating railway system into a financially successful concern".

Mr. Hill speaks of the competence and experience of the staff. We have no doubt whatever as to the efficiency and reliability of Mr. Samuel Coultis, the chief of the Pipe Line Division, and we do not question the competency of the men under him, but surely the selection of a staff is a matter of administration.

Mr. Hill also refers to the small amount of depreciation found to exist in the property. This is without doubt the reason that he did not make a greater depreciation allowance.

There undoubtedly is that intangible something in a going concern having customers which a concern not going has not, something in the nature of goodwill although not given that name which, perhaps, in a proper case may be taken

into account but where as here we are dealing with a monopoly there will be no lack of customers of necessity so long as there is need for the line; We, therefore, do not see that value attaches on this ground.

Although we cannot well fail to take into account that the pipe line system is a successful going concern, we make no allowance for going value as such, as a separate item. As was said by the Commission in the case in re Appleton Waterworks Company, 6 W. R. C. R. 97, "It must be conceded that "going value" however computed, cannot be made the means of fictitiously increasing values or creating values that do not, in fact, exist." In the Supreme Court in this case this was said:-

" The value of the plant and business is an indivisible gross amount; it is not obtained by adding up a number of separate items, but by taking a comprehensive view of each and all of the elements of property, tangible and intangible, including property rights, and considering them all, not as separate things, but as inseparable parts of one harmonious entity, and exercising the judgment as to the value of that entity. In this way the going value goes into the final result, but it would be difficult for even an expert to say how many dollars of the result represent it."

No discussion of values for rate-base purposes would be complete without adverting to the probable life of the oil field. We are concerned with the life of the field not only from the viewpoint of making provision in operating costs for amortization allowances but we are also concerned with the life of the field from the standpoint of fixing

present value for the rate-base because if this pipe line system were disassociated from an active oil field it would only have salvage value.

A number of experts were called to assist us in arriving at a proper estimate of the life of the field, The first witness was Dr. Boatright, a Petroleum and Natural Gas Engineer of Houston, Texas, called by Commission Counsel, who estimated the life of the field with a throughput of five and a half million barrels of oil per year at thirty-one years. The next witness was Dr. Link, Chief Geologist, in Western Canada for the Carrier companies, who left the impression with us from the evidence which he first gave, that the life of the field could not be confidently predicted to be longer than two or three years.

Such a difference of opinion very naturally aroused public interest and in particular the interest of those whose money had been invested in drilling operations in the Turner Valley field as well as those who were contemplating further development ventures and had still to attract capital in order to finance them. In the result, application for delay was made to us in order that experts might be brought from outside points to examine into the question of the life of the field and to give to the commission the benefit of their opinions with respect thereto. We thought that it was in the public interest to grant the application for an adjournment not only in order that we might be better informed but also in order that a general belief that the Turner Valley Oil field would cease to be an oil producing area within a very short time, should not be fostered unless it were fully established that this was the fact. Any such belief would, of course, put an end to development with money that the public

would be asked to subscribe. It would have led to the financial destruction of companies in operation that were not fully financed and it would have permitted of a strong corporation or corporations taking over the whole field at sacrifice prices if they were of the opinion that the prospects for the Turner Valley oil field were brighter than Dr. Link's evidence as first given, would seem to indicate.

It is, we think, proper to say at this point that after other experts had given their evidence, Dr. Link was recalled and given an opportunity of clarifying his position. We quote from his evidence to show exactly what he intended to have us accept as his true position. We quote as follows:-

"Q THE CHAIRMAN: Dr. Link, when your counsel intervened in the course of some observations by Mr. Frawley, to state what he appreciated to be the effect of your evidence
.the impression he sought to leave to the Commission and I wish you to verify it if it be so, was that the effect to be given to your evidence was that in your opinion the field had a life of two years certain, probably three years, but that there were some ten thousand acres that you did not take into account in expressing that opinion which might or might not prove to be productive in the matter of oil?

A That is exactly the impression I want to leave.

Q I just wanted this to be very clear that we understood that?

A Yes.

"Q So that in your opinion the life of this field may or may not be greatly in excess of three years?

A Yes.

C MAJOR LIPSETT: On that, Dr. Link, I think your last figures were that there was a possible crude area of 17,187 acres?

A Yes.

Q Of which 3,623 acres were proven?

A Were proven and that 310 were proven dry.

Q Yes?

A Yes, and you might add a rider to that.....

Q That makes a figure requiring consideration of about 13,000 acres?

A Yes.

Q Instead of 10,000?

A That is it exactly.

THE CHAIRMAN: I understand."

"Q In arriving at your figure for reserves, in other words your evidence was primarily given with respect to the geology?

A Yes.

Q And was merely a first approximation as far as the oil reserves underlying that acreage was concerned?

A Yes, While I am on my feet if I might summarise again what I would like the Commission to understand is my evidence. My evidence amounts to this; on the basis of very intensive study of the limestone cuttings of the porous zone I arrived at the conclusion that any estimate with respect to the Turner Valley reserves based on the porosity method is absolutely

worthless and as a first approximation of what might happen I gave the decline curve of the four longest life wells in the actual oil area and from there on I recommended that an engineer carry on and investigate thoroughly all the wells and give his estimate, which Mr. Davies did. Now that is really all I intended to convey to this Commission.

Q THE CHAIRMAN: You did express some opinion as to the probable life of the field, which you have now explained

A Yes.

Q With regard to the 13,000 acres which may or may not produce oil?

A Yes.

Q Is it to be thought that a geologist or engineer or one who is both, or two people concerned with their respective branches?

A Yes.

Q Cannot express an opinion with regard to the 13,000 acres, an intelligent opinion on it, as a professional man would give?

A I would prefer that a man older than myself, having seen actually other fields, possibly similar, would give his opinion rather than accept mine. I am only speaking of what I know of Turner Valley. I have read about others and there are graphs of others available showing the decline in them which if you wish can be submitted, but as far as my experience is concerned, I have only dealt with one limestone field and I am very reluctant to make an estimate of these possible

areas or this possible acreage, or that possible acreage!"

Dr. Boatright's methods of estimating the reserves in the Turner Valley oil field were in the gas zone what he describes as the pressure drop method. This method was used because, as to the gas horizon, records were incomplete and there was insufficient porosity data upon which to proceed with the porosity method, which he used in estimating the reserves in the oil area. The porosity method which he adopted for the oil area is a volumetric method under which an estimate is made as to the total volume of the porosity underlying the field, as to the oil content of that porosity and as to the recoverability of the oil.

Dr. Link's evidence was that of a geologist. As he has pointed out in the evidence quoted, it was intended that his evidence should be supplemented by the evidence of Mr. Davies. Mr. Davies is a Petroleum Engineer of Calgary, Alberta, called by the Carrier companies. Like Dr. Link he rejects the porosity method of estimating reserves in this field and comes to his conclusions on the bottom-hole pressure decline method, stressing the increase in the gas-oil ratio with bottom hole pressure decline.

Mr. Gill is a Petroleum Engineer of Houston, Texas, called by the Anglo-Canadian Oil Company. His method of estimating reserves is based on the decline of the rate of production. As to his use of production decline curves, Mr. Gill says:-

" A decline curve is not something at which a man can look and say 'This well is going off awfully fast, and we are sure that it will only last another

year or so.' It is rather a method or law providing an adequate mathematical curve which can be extrapolated mathematically into future years, with a great deal of certainty. Such extrapolation of decline of curves where proper data are available, are unquestionably the best methods of predicting the future production from oil wells, since they tie in to all of the factors which cause production and recovery."

Mr. Gill criticizes Mr. Davies' use of a decline of pressure as a fundamental factor in coming to his conclusion on the ground that there is not sufficient knowledge as yet as to the performance of pressures in Turner Valley to justify a method involving this consideration. Mr. Gill also has criticized Dr. Boatright's porosity method, pointing out that Dr. Boatright only had the opportunity of examining the core from one well, and that the examination of cuttings is not a satisfactory means of estimating porosity.

Mr. Shaw, a Petroleum Engineer of San Antonio Texas, a witness called by the Anglo-Canadian Oil Company said that he was not satisfied with the porosity method without a sufficient number of cores being taken from wells scattered around the field to permit of satisfactory averages for porosity and permeability to be made. He was of the opinion that bottom hole samples of the fluid should be obtained and that more evidence of the relationship between the quantities of oil and gas as they exist in the reservoir was necessary. He was of the further opinion that more bottom hole pressures should be taken over a long enough time to permit of an engineer ascertaining the pressure in the reservoir surrounding the well after equilibrium had been established. His estimate is based

upon the application of his knowledge and experience to the appearance of the field, and the performance of the wells and upon what he describes as "generalized views of porosity and so forth."

Mr. Deussen, an independent Consulting Geologist from Houston, Texas, called by the Carrier companies says that the decline curve method adopted by Mr. Gill is commonly used, that decline curves are really an actual plotting of the behaviour of the well, but that this method is of little value when there is no accurate data, and there has been, as in this field, acidization of wells and pro-ration by a Conservation Board. He points out that there is a latitude for discretion in interpretation and in finding how the decline curve should be constructed and extended. As evidence of this room for difference of opinion, according to the interpretation used, he points to Dr. Link's anticipated recovery from the present producing area of seven thousand barrels per acre as against Mr. Gill's conception of 20,000 barrels per acre, both using the decline curve method. Dr. Link's figures indicating an exhaustion of oil of 66% and Mr. Gill using the same method in his interpretation of decline comes out with an exhaustion of 8%. As to the porosity method, Mr. Deussen thinks that it is not now commonly used, and certainly should not be used in the Turner Valley field. Mr. Deussen is of the opinion that there must be a long background of experience and history to support accurate estimates. He has told us that his criticism of the methods adopted by other experts is only for our enlightenment. The opinion which he affirmatively advances is, he says, founded upon the knowledge which he has acquired of the past production of the field in

those places in which drilling has taken place plus his geological instinct as to what will happen in the future.

We quote from Mr. Deussen's evidence as follows:-

"Q THE CHAIRMAN: Mr. Deussen, I just want to be clear, you have discussed for purposes of enlightening the Commission?

A Yes.

Q The investigations made by other engineers and geologists and the data which they have provided for your consideration?

A Yes.

Q And you have given your reasons for bringing what they have said to our notice?

A Yes.

Q But basically, if I apprehend what your evidence means, basically you found your opinion to us upon the past production of the field in the proven area plus your geological instinct as to what will happen in the future?

A Absolutely, Mr. Chairman."

Mr. Hill, the Engineer called by the Carriers to establish the value of the system, expresses no opinion as to the life of the field. I quote from his report as follows:-

" The Engineers express no opinion as to the probable life of the Turner Valley Oil field. This field has been a substantial producer of crude oil only for the last two years. Its development is probably only partially completed and it may become a field of major importance. The life of this field depends on many factors unknown

and unpredictable at this time, such as its extent and productivity, the annual demand upon it, methods of production and the cost of recovering the oil as compared with costs of other crudes which may become competitive."

What we have said and what we have quoted serve to show that there has been a most striking difference of opinion amongst the experts called before us as to the method of measuring oil reserves.

Turning now to their conclusions Mr. Davies finds that a proper estimate for the proven area is 25,000,000 barrels of which some 8,000,000 barrels has been withdrawn. In what Mr. Davies calls the possible area he finds that there are some 13,000 acres which he thinks will be productive to the extent of about 6800 barrels per acre on the average. This provides a reserve of 105,000,000 barrels which at a rate of withdrawal of 5,000,000 barrels a year would give exactly 21 years as the life of the field. At the rate of withdrawal based on the experience of 1938, which your Commissioners are disposed to accept of 6,000,000 barrels a year, the life of the field according to Mr. Davies' reasoning would be 17.5 years.

It is to be noticed that the other expert witnesses were asked to assume a pipe line throughput of $5\frac{1}{2}$ million barrels per year in estimating the life of the field. This was done upon the erroneous assumption that this was the throughput for the year 1938, whereas it in fact was something over 6,000,000 barrels.

Mr. Shaw was careful to avoid tying himself down to any given number of years, but he says that on a basis

of a withdrawal of five and a half million barrels per year he would estimate the life of the field with the certainty necessary to recommend the investment of money by a Banker as being from 22 to 36 years.

We think it not unimportant to quote Mr. Shaw's final statement as given in evidence:-

"Q Mr. Shaw, you are the same Mr. Shaw who testified yesterday?

A Yes.

Q And are still under oath of course?

A Yes.

Q In your estimates yesterday you gave a figure of from 22 to 36 years as being the probable life of the field?

A Yes.

Q And I just want to ask you one question with regard to that life, that minimum figure of 22 to 36 years represents the figure upon which you would base a financial investment, is that not correct?

A That is correct.

Q In other words were a Banker to contemplate putting money into the Turner Valley field you would recommend that it be placed upon the basis of from 22 to 36 years?

A That is correct, on the basis of 5 and a half million barrels withdrawal per year.

Q That is right, thank you."

Mr. Gill's conclusions as to oil reserves may be succinctly stated in his own words. We quote from his evidence the following:-

" Those estimates then are 110,000,000 barrels for the proven part of the field, and 75,000,000 barrels for the probable area and 30,000,000 barrels for the possible area, or a total of 215,000,000 barrels, which I consider an extremely reasonable, minimum anticipation of total recovery of oil from the field. Now there have been some 8,000,000 barrels produced to date and I therefore subtract that and state as my very firm opinion that you may safely, conservatively and reasonably expect to recover not less than 200,000,000 barrels of oil from the oil zones in the Turner Valley field "

At a rate of withdrawal of five and a half million barrels per year, which was the rate of withdrawal put to the witness, he gave a life of the field of 36 years and added that he was known as a Banker's appraiser and if he were estimating the dollar value on that reserve he would not knock anything off the estimated reserve. Mr. Gill's two hundred million barrel reserve if withdrawn at the rate of 6,000,000 barrels a year, would give a life to the field of 33-1/3 years.

Mr. Deussen's conclusion put in his own words is as follows:-

" The total indicated remaining reserves in this field are, according to my best judgment, 122,388,027 barrels, which at the rate of your present production, 15,000 barrels a day, represents 22.3 years of life for this field at the present rate of production, and that, Mr. Chairman and Mr. Commissioner, concludes my testimony."

Applying the rate of withdrawal which we think

sound of 6,000,000 barrels a year, Mr. Deussen's life of the field would be 20.3 years.

It is to be noted that Mr. Deussen took 9,000 acres as his probable or possible acreage instead of the 13,000 acres used by Mr. Davies and accepted by Dr. Link. It is not clear as to whether this is merely a slip or as to whether he intended to differ with the other two witnesses called on behalf of the Carriers as to this, so we merely mention the discrepancy.

The evidence of Dr. Boatright was that assuming a throughput of 6,000,000 barrels a year instead of the throughput first given to him, and assuming against himself that his figures do not represent an accuracy of over 70% and assuming that the benefit of the possibility of error would be given to the Carrier Companies, he finds that the life of the field is approximately 19 years or to be exact 18.9 years.

After all expert testimony had been given Dr. Boatright was recalled. We propose to quote from his evidence which is in the nature of a reply, not because in that way we wish to adopt all of his criticisms or to seem to give the stamp of our entire approval to the application of his porosity method as opposed to the other methods used by other expert witnesses, but rather with a view to bringing out in language more apt than we might employ the technique of the application of the various methods adopted by the witnesses in estimating the life of the field; we quote Dr. Boatright's evidence for further reasons, firstly to emphasize that in coming to his final conclusion he allowed 30% for error in favour of the Carrier Companies; secondly to make clear that he adopted the porosity method only after making estimates based upon all other

methods referred to in the evidence of other witnesses and thirdly to show that he came to the conclusion that the porosity method should be adopted, not only because in his view it was the most suitable, but also because it worked out as the most conservative way of estimating the life of the field.

Dr. Boatright's evidence in reply is as follows:-

"Q Dr. Boatright, you are still under oath?

A Yes.

Q And you are being called by way of reply?

A Yes.

Q I want to direct your attention to one or two matters and invite your comment upon them. I think it is a fact that Dr. Link and Mr. Gill and Mr. Deussen, commented upon your views, I mean your use of the porosity method of determining reserves, that is so, is it not?

A That is correct.

Q And is it true that basically your method was the porosity method?

A That is correct.

Q Then, Dr. Boatright, will you make such comment as you think is pertinent upon those remarks which have been made by the people upon your method?

A Because of the conditions prevailing in the Turner Valley field and after an analysis of those conditions prior to making my original estimates of the oil reserves in the Turner Valley field it seemed to me that any estimates made upon a conservative basis must of necessity include as great a number of wells as possible. It has been admitted throughout the testimony in this case that the field is spotted; that it is a limestone

"field and that it has peculiarities which are not
"commonly found in other fields. The various methods
"which have been presented here by the different engineers
"were all considered prior to the time I decided to make
"my estimate upon the basis of porosity, Mr. Gill, in
"his discussion discussed the various methods of estima-
"ting reserves and analyzed them. I did the same thing
"prior to making or prior to basing my estimate upon
"the porosity method. In the case of the various types
"of methods, the production decline curves I believe
"were used by Mr. Link and by Mr. Gill.

" I believe that the evidence brought out in this
"case established that Mr. Link arrived at a field life
"of something like 2 or 3 years and that Mr. Gill arrived
"at a field life of something over 36 years. I believe
"that had Mr. Link's estimates been based upon his so-
"called 'probable' acreage, that his estimate would have
"been somewhere in the neighbourhood of 25 years. That
"gives a discrepancy of around 70%. Upon the basis of
"the individual application of the decline curves by two
"different men, taking into consideration what they
"thought was necessary insofar as the field is concerned,
"in those estimates, Mr. Link, I believe, used 4 wells
"and Mr. Gill, I believe, used something in the neighbour-
"hood of 10 wells. Mr. Link's wells, of course, were
"located a few in the gas-cap and one or two in the oil
"horizon, two of the wells I believe being in a sort of
"intermediate zone called the gas-oil contact, one being
"very definitely in the gas-oil contact and the other being
"a definitely oil well.

" Mr. Gill's wells were chosen with more care insofar
"as their position on the structure is concerned. However,
"the fact remains that there was a discrepancy of some
"60 or 70 per cent between their two figures. Applying
"the two methods, however, to the figure which I used,
"Mr. Gill's estimate of 36 years and Mr. Link's estimate of
"25 years based on his 'possible' acreage would have given
"a figure fairly close to the 31 years given, give an
"average figure fairly close to the figure 31 years which
"I derived by using the porosity method.

" In the case of the gas-oil ratios and the bottom hole
"pressures which were used by Mr. Davies, that method was also
"considered, I believe it was developed during the testimony
"that bottom hole pressures in the first place have been
"accurately obtained only during a relatively short time and the
"basic figures which had to be used in using that method
"were estimated or had to be estimated as to the life of
"the productive period assumed. Furthermore, it was
"brought out during the testimony that gas-oil ratios
"are a function of bottom hole pressures and at the
"particular time that those curves were used the bottom hole
"pressures were in a state of flux and, therefore, were
"unreliable. The gas-oil ratios themselves are functions
"of the rate of production at which the various wells are
"producing and there was little or no information available
"concerning those ratios or the relations between the gas-
"oil ratios and those ratios. Mr. Shaw and Mr. Deassen
"based their estimates primarily upon their experience,
"Both production and decline curves, gas-oil ratios and
"bottom hole pressures and two other at least displacement

"methods were investigated by me before deciding to use the
"porosity method. Admittedly the porosity method has draw-
"backs, as had all of the others and it was my estimation,
"and it still is my estimation, that the porosity method for
"Turner Valley under present conditions offers a reasonable
"basis for estimating reserves and is extremely conservative.
"All of the other methods can be interpreted to give results
"much higher than those which I have obtained by using porosity.
"I used the porosity, which of course was derived from
"information furnished me by Mr. Johnny Owre in the Government
"offices. As support for the information which he derived
"we have only one core in the field, Soy Hill No. 1.
"However, in that particular core, which incidentally
"I believe only included the lower porous zone, a figure
"in excess of the one I used was obtained for the total
"void space as has been developed here, whereas there are
"two porous zones. On that factor alone the figure of an
"8 foot void space which I assumed based upon my study
"of these porosity determinations provided at least a
"safety factor of approximately 50% on the basis of the
"only actual core in the field. Based upon that porosity
"method then I arrived at my reserve figure of 17,000
"barrels per acre and I still think that that was a very
"good figure. I might compare that figure with the
"figures which have been given by other experts here.
"Mr. Gill estimated 20,000 barrels per acre for his so-
"called 'proven' area which included, I believe, some
"5500 acres. He estimated his 'probable' acreage at
"7500 acres and on the basis of his experience he said that
"the chance was 50% and therefore cut the 20,000 barrels

"per acre to 10,000 barrels per acre for that area. He
"took the 'possible' area of 6000 acres and said that the
"chance there was 25%, again based upon his experience
"with fields of this type or similar types and arrived
"at a figure of 5000 barrels per acre. Averaging these
"up purely arithmetically and not necessarily on the
"acreage involved it shows that his average estimate was
"somewhere in the neighbourhood of 15,000 barrels per
"acre over an area of about 19,000 acres as compared with
"the 10,000 acres which I assumed in my estimate and in the
"10,000 which I assumed I used a figure of 17,000 barrels
"per acre. Mr. Deussen assumed a figure of 10,000 barrels
"per acre throughout. Mr. Shaw gave figures of from 15
"to 20,000 barrels per acre over the proven and possible
"areas. He assumed the proven areas to be between 3 and
"4,000 acres and the probable between 8,000 and 10,000
"acres in addition to the proven area. Mr. Link used a
"figure I believe of 7300 barrels per acre and of course
"only calculated his reserves in the proven area, which I
"believe he assumed to be 3623 acres. In other words, the
"figure of 17,000 barrels per acre which I arrived at by
"the porosity method ranges pretty well on the average
"between the various estimates which have been presented
"by the other experts who have testified.

" In connection with the acreage which I assumed and
"with an analysis of Mr. Link and Mr. Davies who only
"calculated actually proven reserves, my figure of 10,000
"acres of 'probable' reserves is less than any of the other
"estimates which were made here. Comparing the life of the
"field which I arrived at by determining the reserves on

" the basis of the porosity method, I determined a life of, a probable or a sure life of 31 years. That compares with an average of approximately 20 years, if we take Mr. Gill's, Mr. Deussen's and Mr. Shaw's and my estimate together. In other words it seems to me that the porosity method insofar as the testimony here brought out is concerned has been ultra-conservative.

Q And you are quite willing to adhere to that in making your final submission?

A I am.

Q Do you attach any significance to the fact that Mr. Deussen omitted from the wells which he used the North wells?

A Yes. Mr. Deussen's figures were based first upon assuming 20%, which was purely a figure derived from his experience, with no foundation in the facts of the Turner Valley field; using that figure and the production from a certain number of wells in the South end of the field he determined what the average production per well would be, regardless of the well spacing. Then in arriving at the production per acre he took the total area, total productive area or proven area of Mr. Link, excluded therefrom the dry hole areas of approximately 310 acres, or used in other words a total figure of 3623 acres, and divided the recovery, the total recovery to be expected from the number of wells in the South end of the field, which I believe were 63, and arrived at a figure of 10,000 barrels per acre. Had he used the well spacing in effect in the South end of the field, of some 40 acres, and as a matter of fact in the South end of the field it is not reasonable to assume that the wells drain 40 acres because of the fact that in a great

" deal of that area, - the average well spacing for the whole proven area on the basis of the 40 acres allotment which is given by the Conservation Board, averages 36 acres to the well, - using the figure however of 40 acres per well, if that has been used against these 63 wells it would have resulted in Mr. Deussen's figure being approximately 24,000 barrels per acre, instead of the 10,000 which he used, and I feel that even although his methods were sound insofar as his procedure was concerned, his figure of 10,000 barrels per acre would be erroneous because of the fact that he included areas in the North end of the field in his acreage which were not included in his reserve figure, or his actual production per well figures or the average production for the South end of the field.

Q Now I want to ask you about Mr. Deussen's figure of 10 years after having arrived at a figure of 22 years, he told the Commission, in answer to Mr. Nolan that he would desire to reduce that to ten years, having in mind the advice which he would give to his banker in putting money into the Turner Valley field, what comment have you to make upon that cut in his evidence, in his estimate?

A In my original estimate of 31 years which I believe is the probable life of the Turner Valley field and the life at the rate of 15,000 barrels per day, which the field will realise, I stated that for pipe line amortization purposes I felt that, because of the fact that estimates based upon any of these methods were subject to errors of approximately 30%, I felt that in fairness to the pipe line companies we should give the benefit of that doubt and suggested a figure.

" of 20 years as being the reasonable life for pipe line purposes; that does not mean that I do not think that the field will last 31 years. I do. That is my estimate of what the field will actually produce as a minimum. However, in view of the nature of the fundamental data which is available at this time, regardless of the method of interpretation, it is my opinion that the accuracy of any estimate cannot be over 70%; therefore it was my feeling that in arriving at the life of the field for pipe line purposes that the benefit of that doubt should be given and it was for that reason that I would allow a period of 20 years for pipe line purposes. Mr. Deussen's estimate of 10 years was a banker's estimate and there is a great deal of difference between that estimate, or estimates made for banking purposes, and estimates made for other purposes. In the first place a bank must have security much in excess of the value loaned. In Texas it is common for banks to require from three to six times the probable, the reserve must be from three to six times the value of the money put up by the bank.

Q Dr. Boatright, have you had experience of the kind you are now speaking of?

A Yes, I have.

Q Personal experience?

A Yes. Further, most banks in general wish from two to three year pay-outs. In other words, the rate of income must be sufficient to pay out the loan within two or three years. Now that is the type of estimate that Mr. Deussen had in mind when he said that a ten-year life was all that he would recommend to a bank. Incidentally, of course, Mr.

" Deussen did not give any percentage figures.

Q MR. FRAULEY: Dr. Boatright, have you any other general comments to make by way of reply to the evidence which has been given since you were last on the stand?

A No, I think that is everything.

Q You think that is all?

A I believe that is all.

THE CHAIRMAN: Any questions?

MR. NOLAN: No, thank you, my Lord.

THE CHAIRMAN: Have you any intention of calling this witness on any other phase?

MR. FRAULEY: Yes.

MR. FENLERTY: Mr. Gill would like to have the opportunity of asking Dr. Boatright some questions.

Q MR. GILL: Dr. Boatright, there are just one or two questions I would like to ask you about, concerning these estimates, and naturally particularly concerning my own estimates. In the first place, the decline curves form a definite mathematical rule?

A That is absolutely correct.

Q And a study of the mathematical curves, which is the integration of a normal decline curve, will be a straight section on semi-logarithmic paper but not on the rectangular co-ordinates?

A That is right.

Q Might I ask you this, in basing your estimates did you take into consideration the weighted average barrel of oil, in arriving at your figures?

A No, I did not.

Q I believe it is 11,210 barrels for the total reserves,

" and 10,520 barrels per acre for the remaining reserves?

A That is the weighted figure, I believe. I did not do that.

Q Is it then the only difference in the final results between my estimates and those Mr. Deussen arrived at as the result of his geological instinct that I took into account further developments, particularly with regard to Okalta 6, Extension 1 and Home-Millarville 2, which have taken place since the time that Dr. Link estimated what would be the probable potential oil area?

A I am sorry I did not know whether you were speaking of Dr. Link or of Mr. Deussen.

Q Mr. Deussen used part of Dr. Link's figures. Mr. Link stated seventeen thousand and some acres possible oil territory?

A Yes.

Q I used 17,000 to 19,000. Dr. Deussen used, I believe, 3623 acres plus 10,000-acres. Is not that difference at the present time entirely due to the things that have come to light since?

A That is correct. Furthermore, the difference might be due to the difference in the wells. We measured the average wells, and Dr. Link used to a great extent in determining his figures gas-cap wells.

Q I thank you."

We accept Dr. Boatright's view that all that has been said by Mr. Deussen and Mr. Hill about how soon it is desirable from the standpoint of a Banker or other investor to get back money invested in a pipe line system has no bearing upon the life of the field. If all experts were agreed that with a throughput of 6,000,000 barrels per year this field had a life of say 25 years, it would

not be important to know that a Banker who had lent money on the pipe line system insisted upon being paid back in three years.

Since the phase of the evidence having to do with the life of the field has apparently been of great public interest, it would not be surprising if the disagreement amongst the expert witnesses has subjected them to the not unusual charge against experts that their opinions have been made to conform to the requirements of their employers.

As to this we think that we should have something to say. It is to be remembered that experts do not select the position of witnesses, on the contrary they are selected either by parties who have an interest or by their counsel. Now it is to be expected that the experts finally selected by a party in interest will be an expert whose opinion is in harmony with the opinion which that party desires to have advanced as leading to a conclusion advantageous to him. It therefore does not at all follow that because experts disagree that they are making their opinions suit the person who is paying them their fee. On the contrary we would say that this is seldom if ever the case. In short, it is our view that generally speaking an expert witness is called by a party because his honest opinion suits the purpose of the party calling him, and not because the expert will dishonestly change his opinion to meet the needs of the person who is rewarding him for his services. We think it proper to add with regard to the very able men who were before us that we have no reason to think that any one of them was not honest

in the opinion which he gave.

In this Inquiry we have the good fortune to have Commission Counsel. We have no reason to think that his selection of Dr. Boatright as a witness was inspired by any other thought than to have a very able man give us an unbiased opinion. We have the statement of Dr. Boatright, under oath, to the effect that his instruction by Commission Counsel was to proceed by whatever method he thought best to make an estimate and to give to this Commission an unprejudiced opinion as to the life of the field. The method of his selection and the nature of his instruction might induce us, if the evidence were evenly balanced, to accept his view rather than the views of those who have been called to give evidence by interested parties who doubtless would not call them if the evidence that they would give would not lead to a desired result. But aside from this consideration we are disposed to accept Dr. Boatright's conclusion in the main, because as we have pointed out before adopting the porosity method as a basis for his conclusion he made his calculations based on every other known method and finally adopted the porosity method not only because he conceived it to be the soundest method to apply to this field but also because on his estimated areas, which we are willing to accept, it led him to the most conservative results.

We have already stated that in our opinion the estimate of a throughput of 6,000,000 barrels per year is a sound estimate for the future. Accepting this estimate and being even more conservative than Dr. Boatright has been we find that the reserves of oil are such that the life of the field

may be safely estimated as being at least eighteen years from the first day of January, 1939.

Dr. Boatright's conclusions were conditioned upon the efficient operation of the field by insistence upon proper production methods. As to this we have had the benefit of the evidence of the Honourable Mr. M. E. Tanner, Minister of Mines for Alberta, which was to the effect that it was the policy of the Government to pursue conservation of these natural resources in conformity with the best expert advice that the Government was able to obtain with a view to getting the greatest possible ultimate recovery from the field.

All of these estimates of the life of the field of course depend upon the soundness of the assumption that the six million barrel throughput will be the experience in the future. There is the suggestion of Mr. Davies that it may prove difficult to obtain the capital necessary for drilling operations to produce the oil in quantities equal to the 1938 experience. This would of course have the effect of prolonging the life of the field although adding to the operating cost and reducing the amount of the income to the carriers. It has also been suggested that there might be the discovery of other fields in which oil can be obtained from shallow wells at less cost than in the Turner Valley field, which would have the effect of stopping drilling operations in this field. As to these two suggestions we have the evidence of Dr. Boatright which we are prepared to accept that wherever there has been a real oil field discovered its development has not been prevented either by lack of capital or by the discovery of other fields in which oil wells can be drilled at less cost. There is the further suggestion that the Conservation Board may regulate and control the amount of

the output of present and future wells so as to reduce the throughput below the 1938 experience. As to this Mr. F.G.Cottle, a member of the Conservation Board, tells us that control by the Board will, in his opinion, have the effect of causing a very great deal of oil that was moved from the Valley by truck in 1938, to be moved through the pipe line in 1939, and he expresses the very definite opinion that the Conservation orders of the Board will not restrict the throughput of the pipe line in 1939 below that of 1938.

There is also the suggested risk of a competitive pipe line, but there is no evidence to show that another line is contemplated, and as we have already pointed out this is in any event in the control of the Board of Public Utility Commissioners.

We have also been told of the risks of reduction of throughput incident to crop and weather conditions. Even as the throughput may be greater so may the throughput be less on account of the conditions last mentioned. Undoubtedly a crop failure in Western Canada would have a serious effect upon the throughput of the line but this and other hazards are in part at least the reason why a rate is allowed comparable to the return expected in other fields of industry with like risk. If there were no hazards this pipe line system might well be required to accept a rate of return of $2\frac{1}{2}$ or 3 per cent as a proper rate upon absolutely safe security.

There is a further risk about which there was much ado in the course of evidence, and that is foreign competition, and in particular from the Illinois field. A telegram was put in evidence as Exhibit "174" from Mr. LeSueur, an officer of the Imperial Oil Company, which reads as follows:-

"Referring to your telegram of 9th instant advising
Commissioners require definite statement of policy by

company in regard to evidence of James McGrath (stop)
Company's settled policy is to use Turner Valley crude wherever possible (stop) Because of competition from new Illinois production and so long as present conditions exist Company finds itself unable use Turner Valley Crude for supplying large part of Manitoba despite fact that we are producers in that field (stop) This will result in daily average reduction of requirements of Turner Valley Crude for Regina Refinery of approximately 2,850 barrels and in reduction in price of white products in portion of Manitoba so served (stop) Company's policy as to Regina Refinery is subject to similar economic factors based upon Montana competition but no definite policy has as yet been decided upon".

It is probably enough to say as to this that as shown in evidence by Mr. Cottle the normal requirements of other people taken together with the estimated requirements of the Imperial Oil and British American Oil Company for the year 1939 as sworn to by witnesses who were officers of these companies will more than equal the throughput of 1938, but it may not be amiss to add that it seems to us that whether the throughput be greater or less is largely a matter in the hands of the Standard Oil Company or the Imperial Oil Company or the Royalite Oil Company whichever may have the determination of how much crude owned or controlled by them or any of them will go through the pipeline. It is said for these companies that it would be economically unsound for them to buy oil from Turner Valley and put it through this pipeline if they can buy oil for their refineries more cheaply elsewhere. It is said that they must be governed by competitive conditions that govern in other parts of the American continent and that the lowering

of the price in other fields must inevitably lead to the lowering of the price to producers in this field and that if the producers cannot meet the competition then the throughput will be seriously affected.

Now as to the Illinois field being a real threat to the
-Turner-
throughput of the/Valley field, we have no evidence as to how long it may continue to be a competitive field nor as to whether or not uncontrolled and unregulated flush production accounts for what is but a temporary condition and so much unnecessary alarm. We have no knowledge of any long term contracts that would lead to an opposite conclusion. Furthermore we are not at the moment considering the price to the producer and we may say that so far as the throughput of the pipeline is concerned, since the carrier companies are interested in the pipeline and are the ones who post the field price, we have no doubt that unless they become interested in the Illinois field as owners or common carriers they will if necessary require the producers to take a less price and continue the throughput of the Turner Valley pipeline. Mr. McGrath an officer of the Imperial Oil Company made it quite clear that the Illinois intrusion upon the Western Oil markets was conditional upon Turner Valley producers not meeting competition. We heard something from a witness representing the British American Oil Company as to competition affecting the throughput not only from the Illinois field but also from the East Texas field. On inquiry we found that one at least of the companies posting the field price in the East Texas field was the Humble Oil Company which is a subsidiary of the Standard Oil Company of New Jersey. We cannot say on the evidence before us to what extent competition in other fields has legitimately affected the price in this field because we do not know to what

extent there is free and unrestricted competition; we do know that the Royalite Company posts the field price in Turner Valley and that the British American Oil Company admittedly will follow that price. These two major companies appear to work together in perfect harmony. There is no suggestion that any other company will intervene and so if the principle of always doing that which is economically sound, is to govern the conduct of the Carrier companies even to the destruction of the usefulness of the pipeline system, then since it is in the power of the Carrier Companies to post a field price tomorrow at which no one could afford to produce oil other than themselves it is to be expected that the Turner Valley field will shortly be taken over by the Carrier companies with or without other major companies, in the absence of Government intervention. For our part we are not going to make any such assumption on the evidence before us. We do not think that it has been shown thus far that the carrier companies or their parent company, the Standard Oil of New Jersey have been ruthless in the exercise of the great power which in our view they undoubtedly possess. We prefer to think that they are concerned with the continuation of the pipeline system which has brought them an enormous profit in years past and so we are not going to make any recommendation based on the view that the throughput with which we are concerned will be manipulated to the disadvantage of Western Canada, or that it will be less in the future than that which Mr. Cottle has shown may be reasonably estimated for the year 1929, even after the reduction suggested in Mr. LeSueur's telegram is taken into account.

We now turn to a consideration of what deduction should be made as accrued depreciation so as to arrive at a proper present value for rate base purposes.

In an article entitled "Innovations in Public Utility Accounting Regulation" By E. W. Morehouse, appearing in Yale Law Journal, Vol. 46 (1936-37) P. 955, there appears a definition of depreciation and some observations concerning it which your Commissioners are prepared to adopt. Depreciation is said to be:

" The loss in service value not restored by current maintenance incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities'. Thus defined, depreciation is an element of cost regardless of the financial fortunes of the business. Items of plant and equipment inevitably march toward the scrap-heap whether or not earnings are available for interest or dividends.'"

There is a conflict of opinion as to what is the best method for measuring depreciation. There is the service output method under which the life of the asset is estimated in terms of its proper quantity of output, depreciation being allowed in proportion to the output during a given period of time. There is also the observation method which involves personal inspection of the property. This is the method which has been adopted by Mr. Hill. We think that in the circumstances

we cannot rely on the results obtained by him by this method. In the first place the result must depend upon the judgment of the appraiser, based upon the kind of inspection and observation which he makes. We are not satisfied that in the case of buried lines there can be or in fact was notwithstanding the amount of uncovering mentioned a sufficient inspection to justify the conclusions put forward. Furthermore the interior of tanks and of all the machines in use in all of their many parts cannot be fully inspected without being taken apart which was not done. This method of course only gives effect to depreciation that is visible and because of this it seems to us that there is every likelihood of the result arrived at being much less than actual depreciation as before defined. We may add that in our view the observed depreciation method too readily lends itself to a misconception of the relationship of operating efficiency and the actual condition of the asset to rate-base determination. Value in use depends on the amount of future service that will be received from the asset. A machine that is working efficiently to-day may, as a result of previous years of use, be working inefficiently or not at all to-morrow. Our object is to determine value. We think this should not be confused with present efficiency which may give an entirely wrong impression as to true value. We, therefore, adopt a method which is based on the service life of the asset.

The straight-line useful life method which we adopt involves a prediction as to the length of the useful life of the property and involves a determination of the value of the service life of the physical plant used up in rendering service. On the whole we think that this is the most satisfactory method for arriving at depreciation and that it is

particularly apt in a case in which the life of the plant is necessarily limited by the limited life of the field which it serves.

Having decided that a deduction of accrued depreciation is necessary to avoid inequitable charges to present and future users and having decided upon the method to be adopted for the measuring of this depreciation we come to the application of the method approved. In the first place it should be pointed out that both of the well-known accounting firms whose officers appeared before us have made their calculations upon the basis of original cost and not present value; now if the rate base is present value as we have found it should be, then the depreciation base must also be present value. In the case *United Railways and Electric Coy. vs. West*, before cited, Mr. Justice Sutherland said by reference to an earlier case:

"If the rate base is present fair value, then the depreciation base as to depreciable property is the same thing.

There is no principle to sustain a holding that a utility may earn on the present fair value of its property devoted to public service, but that it must accept and the public must pay depreciation on book cost or investment cost regardless of fair value. We repeat, the purpose of permitting a depreciation charge is to compensate the utility for property consumed in service, and the duty of the commission, guided by experience in rate making, is to spread this charge fairly over the years of the life of the property."

Having in mind that the observation method should be discarded and that the only other methods put before us are based upon original cost we experienced some

difficulty in determining how to work out accrued depreciation with due regard to present value. We think, however, that with the assistance of the accountant to the Commission, this difficulty has been overcome.

Our method of calculating depreciation is based on the theory that the factors which result in the termination of useful life of an asset act with equal force during each year of the entire life of the asset. The accrued depreciation of each asset should, therefore, be determined by finding the total useful life of each asset and ascertaining how much of the useful life of the asset has been exhausted as at the date of the rate-base. The amount of accrued depreciation should then be in the same proportion to the replacement value as the number of years of exhausted life are to the total number of years of useful life. For convenience and in accordance with good accounting practice, all assets acquired in any one year are considered to be of the same age, and each asset is deemed to have an age, in the year of acquisition, of half one year.

This method was adopted by both Messrs. Harvey and Morrison and Messrs. Price, Waterhouse & Company and applied by them to their respective original cost valuations. We have applied the same method to the replacement valuations to be included in the rate-base but were unable to apply it directly by reason of the lack of information as to the respective age of each asset included in the valuation. This difficulty was overcome in the following manner.

The individual assets valued by Messrs. Ford, Bacon and Davis are those in respect of which the original cost is shown in the reports and working papers of Messrs.

Harvey and Morrison, which were made exhibits. These working papers show the cost in each of the past years and from this historical record we computed, on the straight line useful life method, the accrued depreciation of original cost of all assets as at December 31st, 1938, on the basis of the termination of useful life 18 years thereafter, with a salvage value of 5% of original cost. The resulting accrued depreciation was then computed as a percentage of original cost. This percentage clearly represents the proportion of the undepreciated original cost value consumed as at the date of the rate-base due to the age of the various assets involved in relation to the remaining useful life.

Now the replacement valuations of Messrs. Ford, Bacon and Davis in no sense alter the fact of the age of the assets, and so the percentage of value consumed as at the date of the rate-base should be exactly the same whether replacement valuations or original cost valuations are being considered.

The historical record of costs of Messrs. Harvey and Morrison gives an accurate basis of determining the percentage of total asset values consumed on the straight line useful life method. Having determined this percentage we have only to apply it to the replacement values of Messrs. Ford, Bacon and Davis to determine the amount of accrued depreciation as at the date of the rate-base.

It will be observed that we have used the original cost figures of Messrs. Harvey & Morrison for the above calculations rather than the compilations of Messrs. Price, Waterhouse and Company. The fact is that the investment

figures of Price, Waterhouse & Company include assets which are not used and useful whereas the valuation of Messrs. Ford, Bacon and Davis includes only assets now used and useful. The figures of Messrs. Price, Waterhouse and Company are, therefore, not useful for our purpose.

The results obtained by the foregoing method are now set forth.

Accrued depreciation of pipe line equipment as at December 31st, 1938, was computed on the basis of the termination of useful life of all assets on December 31st, 1956, being eighteen years from January 1st, 1939. Due allowance was made in our calculations for salvage value at the termination of useful life, to the extent of 5% of the undepreciated replacement values.

This was accomplished by determining the percentage by which the original cost had been reduced by accrued depreciation and applying this percentage to the rate-base valuation.

The accrued depreciation as at December 31st, 1938, based on the original cost was computed as \$147,096.52, which is 11.26% of the original cost totalling \$1,306,368.48. The rate-base valuation of the same equipment totals \$1,516,729.30 and hence we find the accrued depreciation to be deducted from the rate-base in respect of these assets is 11.26% of \$1,518,729.30 or \$171,008.92.

The depreciation of the utility and service assets valuation was computed separately because of the greater age of these assets as compared with the pipe line equipment. The procedure followed was exactly the same,

but because of greater age the accrued depreciation of these assets was greater and is computed as 31.919%.

The value of \$186,000.00 included in the rate-base in respect of these utility and service assets is the replacement value before deducting accrued depreciation and accordingly depreciation of 31.919% or \$59,369.34 has been deducted from the utility and service asset valuation in the rate-base.

Summarizing the foregoing we find the total rate-base to be \$1,582,984.04, made up as follows:-

Pipe line equipment at replacement valuations		\$1,380,663.00
Administration and overhead during construction		138,066.30
		<u>\$1,518,729.30</u>
Less depreciation		171,008.92
		<u>\$1,347,720.38</u>
Utility and service assets	\$186,000.00	
Less Depreciation	<u>59,369.34</u>	126,630.66
		<u>\$1,474,351.04</u>
Land and rights of way		18,633.00
Working capital		80,000.00
Rate base as at December 31st, 1938		<u><u>\$1,582,984.04</u></u>

For the sake of clarity we should, perhaps, point out that the figure of \$1,380,663.00 first above mentioned when added to the sum of \$18,633.00 above set opposite Land and Rights of Way gives the total arrived at by Mr. Hill in his report of \$1,399,296.00.

We are next concerned with the rate of return to be applied to the amount of the rate-base. In Whitton on "Value of Public Service Corporations", Vol. 2, p. 1877, the following appears under the heading, "Factors that affect the reasonable rate of return",

"What is a reasonable rate of return for rate-making purposes in a particular case depends upon many factors, including the following:

- (1) The financial history of the utility.
- (2) The extent to which the cost of promotion, bond discount and financing has been capitalized and included in the rate-base.
- (3) The extent to which the cost of establishing the business and creating going value has been capitalized and included in the rate-base.
- (4) The extent to which changes in the purchasing power of money are reflected in the rate-base.
- (5) The security of the investment as affected by inherent appreciation, stability of the industry, favorable location and other causes independent of the duration of the franchise.
- (6) The relative certainty of the utility's earning power in the future.
- (7) The interest rates currently paid in the community.
- (8) The rate of return demanded and secured by capital invested in other enterprises in the same community, subject to similar risks.
- (9) The foresight and efficiency of the management and the quality of the service rendered.
- (10) The extent to which the stockholders through the agency of holding, management and equipment, companies or otherwise reap indirect profits from the operation of the utility.
- (11) The extent to which income taxes levied against the enterprise are paid as an operating expense to the relief of the stockholders as individuals.

- (12) The extent to which the amortization of capital exhausted through permanent depreciation or franchise contract requirements is provided for by specific allowances charged to operation.
- (13) The rate of return required to attract new capital into the business sufficient to meet an increasing demand for service or the exigencies of higher costs in replacements.

In general, if a utility has had a profitable career from the start, not having had to submit to early losses in the establishment of a profitable business, or if having incurred such losses it has subsequently recouped them by a period of high earnings, the rate of return to be allowed in a rate case will be lower than if it had incurred inevitable losses and had not yet been able to recoup them. The rate of return in the case of unrecouped losses will be affected, however, by the present status and earning power and future prospect of the business. Regardless of its past history, the utility is not constitutionally entitled to a higher rate of return than it can reasonably expect to earn under conditions as they are and as they are likely to be in the immediate future. It would be obviously futile and destructive of the regulatory power to hold, either in valuation or in rate of return, or in the combination of the two, that a utility is entitled to more than its earnings at reasonable rates will support.

Also, in general the reasonable rate of return will be lower in proportion to the certainty of the future earning power of the enterprise, and in proportion to the security of the investment itself; but no higher rate of return will be allowed because of the fact that a company may be operating without a franchise or under a franchise which is about to expire."

In Wilson, Herring and Eutsler on "Public Utility Regulation," it is said that the elements of fair return are:

1. Pure interest upon capital employed.
2. A premium or compensation for the risk to which capital is exposed by investment in the particular enterprise.
3. A reward for the management of the property to the extent that such reward or compensation is considered to be due to those who invested funds in the property.

In the same work under the heading of "The Rate of Return and Investors and Consumers" at p. 163 the author says:

"Investors in public utilities should receive approximately the same rate of return as investors in comparable unregulated enterprises. This rate of return must be high enough to give the investor a fair return and the consumers good service but low enough to give the consumers reasonable rate."

When, as here, a system is brought under regulation for the first time there can be no doubt that the value of the property to the owner cannot be determined thereafter without regard to the rates allowed for the service which the property renders and so it is important for this as well as for reasons given at the beginning of this report that a fair rate of return on the amount of the rate-base be arrived at. Having this in mind we have kept before us, insofar as there is evidence

to justify us in so doing, the consideration mentioned in the foregoing quotations. We think that we have given due weight to the evidence of all of the witnesses who have given evidence which has a bearing upon the rate of return to be allowed. It seems to us unnecessary to recapitulate all that the witnesses have said. Since, however, we have been pressed to recommend a rate which will accord with that allowed to the Company that supplies natural gas to the City of Calgary it may be proper to state that we think the suggestion is not a helpful one. In the first place assuming that the Gas Company rate when fixed was a proper one it may now be, for all we know, too high or too low having regard to all of those considerations that must be taken into account in rate-making.

Furthermore according to the evidence the hazards to be taken into account, such as failure of supply and loss of market are much greater in connection with the supply of oil than in connection with the supply of gas.

In all the circumstances we think that the rate of return suggested by witnesses called by the Carrier companies is absurdly high. We also think that the ten per cent which the witness Dr. Boatright suggests and which Commission Counsel advocates is too high. We are of the opinion that a return of $9\frac{1}{2}$ per cent upon the amount fixed in the rate base as the present depreciated value of property used and useful in public service is a fair rate of return.

With a rate base of \$1,582,984.04 this rate provides an annual return of \$150,383.48 or 2.506¢ per barrel on an annual through-put of 6,000,000 barrels.

There remains for consideration an estimate of probable operating expenses, including future depreciation over the period

which has been determined upon as the minimum life of the oil field at the estimated "throughput" and the establishment of a service rate or rates which having regard to the estimated "throughput" will provide a gross income sufficient to cover all operating expenses including depreciation and yield the return decided upon when applied to the rate base before determined.

In speaking of providing for depreciation in the future we have in mind an allowance in operating costs to provide for the impairment of capital which goes on steadily regardless of repairs and replacements and exhausts the capital amount less salvage at the end of the estimated life for the field.

The operating expenses which are taken into account in determining what the service rate shall be are based, in the main, on the cost performance of the pipe line during the nine month period, which ended September 30th, 1938, which period was agreed by all parties to be representative of the whole of the year 1938.

During this period the operating expenses, as determined by Messrs. Harvey and Morrison, were as follows:

Direct operating expense	2.806¢ per bbl.
Losses on sales and retirement of equipment	.025
Proportion of administration, utility and service expenses	.938

The above costs, based on a throughput of 6,000,000 barrels per year, amount to \$168,360.00 for direct operating costs, \$1,500.00 for losses on sales and retirements and \$56,280.00 for administration, utility and service expenses. These probable annual expenditures must be taken into account in the service rate to be recommended.

Income tax has been based on the annual return of \$150,383.48 which, at a tax rate of 22% of income before deducting tax, amounts to \$42,415.85.

In addition to the foregoing, the service rate should provide for the amortization of future capital expenditures, such provision, however, should cover only capital expenditures that must be made in order to maintain the efficient operation of the utility. The greater portion of this provision will be required to extend gathering lines to new wells.

It should be said in this connection that with new wells coming into production and the total demand for oil being apportioned to all wells in the field by the Petroleum and Natural Gas Conservation Board, the utility must extend its gathering system to newly completed oil wells otherwise the volume of oil obtained for transportation will be diminished thus increasing costs per barrel. The expenditure involved in so extending the gathering system must be made in order to maintain the present volume of traffic and in our opinion the rates established should provide for such future expenditures.

Other capital expenditures may be made in the future, for the purpose of increasing the volume of traffic. In our opinion such expenditures should be made by the Carrier only when it appears to be good business so to do in which case no provision need be made in the rates which we now recommend, as good business would require the increased traffic so obtained to more than compensate the carrier for the expenditure involved. An example of such

expenditures is the construction and operation of service lines to refineries in the vicinity of the pipe line terminal in Calgary. It is our opinion that the carrier should pay the cost of the installation and operation of service lines if it appears that the increased volume of traffic resulting therefrom will compensate the carrier for the additional expenditures involved. In this case the carrier requires no provision for such expenditure in the rate which we recommend.

We estimate that an annual sum of \$69,500.00 should be provided annually out of the service rate for the amortization of future capital expenditures. We arrive at this sum by accepting Mr. Hill's figure in respect of the expenditure of \$125,000.00 per year for a period of ten years or \$1,250,000.00 and amortizing this last sum over a period of eighteen years which we find to be the life of the field and so the useful life of the assets.

It is true that Mr. Hill makes no estimate of the life of the field, he does not look into the future beyond ten years but it is to be assumed that when reporting to his client, the Royalite Oil Company, he gave all of the anticipated capital expenditures which, having regard to the particular oil field under consideration would ever be necessary. This forecast seems reasonable having regard to the expenditures already made in connection with the gathering system in the presently drilled area and the extent of that drilled area in relation to the whole field as defined by Dr. Boatright.

Annual depreciation for the remaining life of the pipe line assets is computed on the basis of the amortization by the straight line method of all depreciating assets by December 31st, 1956 with allowance for a salvage value of 5% of the undepreciated replacement value included in the rate-base. The annual depreciation, on this basis is as follows:

Pipe line assets	\$70,654.66
Utility and service assets	<u>6,573.92</u>
	<u>\$77,228.58</u>

In the result we find the service rate necessary to meet all operating costs and to provide a return of $9\frac{1}{2}\%$ per annum on the rate base is 9.428¢ per barrel as shown by the following tabulation:

	Annual Amount	Amount per Barrel
Direct pipe line operating expenses	\$ 168,360.00	<u>2.306¢</u>
Losses on sales and retirements	1,500.00	.025
Administration, utility and service unit expenses	56,230.30	.933
Income Tax	42,415.85	.707
Allowance for capital expenditures not to be added to the rate base	<u>69,500.00</u>	<u>1.158</u>
Total annual expenditures before amortization	\$ 338,055.85	5.634¢
Amortization:		
Pipe line assets	70,654.66	1.178
Utility and service assets	<u>6,573.92</u>	<u>.110</u>
	\$ 415,284.43	<u>6.922¢</u>
Return on investment	<u>150,383.48</u>	<u>2.506</u>
Rate-----	\$ 565,667.91	<u>9.428¢</u>

Having regard to all of the foregoing we recommend a service rate of $9\frac{1}{2}\%$ per barrel for the movement of petroleum or petroleum products whether from the wells, absorption plants or elsewhere in the Turner Valley field to refiners' storage tanks and terminal storage tanks in Calgary.

It will be observed that in making the foregoing calculations we have not taken into account salvage value of physical assets that may be acquired in the future in respect of which an allowance has been made. We think that this is a matter for the permanent regulatory body to deal with. That body will be familiar with expenditures actually made.

Before dealing with terminal deliveries we think that we should make mention of two matters, Freight Rates and Pipeline losses.

One of the factors which must be taken into account in connection with any pipe line throughput is the cost of transportation, first through the line, and second from the end of the line to available markets. As to the first, we think that the service rate which we recommend be allowed to the Carrier Companies is not so high as to reduce a throughput which would otherwise take place. As to the second, it is of interest and a matter of some astonishment to learn that the freight rate for transporting oil from Regina East is greater for a lesser distance than is the freight rate for transporting oil from Fort William West. We are not forgetful that there is a Dominion Railway Board that has to do with railway tariffs and so we do not propose to trespass in that Board's field, but we do venture to point out that if nothing can be arranged as to freight charges with the Railway Companies by private treaty, it is still open to anyone interested on request to have a hearing before the Railway Board with respect to freight rates that on the face of them would seem to be exorbitant.

As to so-called pipeline losses, we find that losses of petroleum and petroleum products suffered at the terminal will be amply taken care of in the service rate which we will recommend to cover loading into tank cars and tank trucks at the terminal. With regard to all other losses of crude oil whether covered by the present deduction of one per cent of the oil handled or not we think that experience has shown that the deductions made in the past are too high and that a deduction of more than $\frac{3}{4}$ of 1 per cent should not be allowed and we recommend accordingly. We do not recommend a reduction in the present deduction with respect to absorption gasoline and naphtha losses.

We come now to a consideration of Pipe Line Terminal matters. After considering all of the evidence that had been placed before us we were of the opinion that we should hear further evidence with respect to trunk line connections with refineries by service lines, how much tank storage would be reasonably required at the terminal to supply adequate delivery facilities and what would be the capital cost in respect thereof, what facilities should be provided for making delivery;

- (a) by connection by service lines to refineries
- (b) to tank cars
- (c) to tank trucks

and what would be the capital cost in respect thereof and what would be the operating expense in respect of all of such delivery facilities.

We made it quite clear that in our opinion delivery at the terminal was an essential part of the operation of a common carrier of oil and we granted an enlargement of this phase of the inquiry to provide an opportunity to the carrier companies of showing what in their opinion should be added to the rate base as a proper capital addition in connection with these terminal facilities and further of showing what should be added to the service rate so as to provide for the operating expense incident-

al to the handling of oil through these facilities at the terminal. It was also left open to the carrier companies or any one else to show that the terminal rate should be a separate rate or in the alternative should be included in the general rate. When the hearing was resumed Mr. Coultis, the head of the pipe line division of the Royalite Oil Company, put forward statements showing the capital expenditures and operating costs incident to the creation of an entirely new terminal system at some point to be selected, although it is not in doubt that all that was lacking in the present system was comparatively inexpensive facilities in connection with the loading into tank trucks, an operation which had not been theretofore performed. As to this we thought that we should point out that the witness had not directed his mind to the capital and operating costs incident to the use of the present terminal facilities, together with any additional terminal facilities required to connect with refineries and to load tank cars and tank trucks. This led to a statement by Mr. Nolan, counsel for the carrier companies and a discussion thereof which is, we think, best put forward by quoting from the record:

"MR. NOLAN: I propose, sir, with your permission to deal with this matter from the point of view of the Imperial Oil Company, to deal with this problem from the point of view of the Imperial Oil Company which owns and operates these facilities of which we are now speaking but for the moment what Mr. Coultis was asked to do and if he has done it improperly it is my fault and not Mr. Coultis', was to look at it from the point of view of the Royalite Oil Company owning nothing at the terminal except the end of the pipeline in the first instance and then we go on from there to decide and to explore what can

"be done having regard to the Imperial Oil's position and the
"fact that it is in ownership of certain assets which are
"presently being used for the delivery of this oil and that
"is coming up, sir. I do not want any misunderstanding
"about that.

"THE CHAIRMAN: I see, I did not want to have this
"matter concluded without giving you the opportunity, I did
"not want, through a misconception or misunderstanding of what
"we had in mind, that you should be precluded from taking ad-
"vantage of the opportunity of showing us what is involved in
"the capital expenditures and what is involved in operating
"costs and so on of what is now there plus anything else that
"is needed and this witness tells us that the only thing that
"is required is facilities in respect to loading.

"MR. FRAWLEY: May I say this, because my friend
"will do this for me, I take it he has been rushed about this
"in view of the fact that we had to wait this morning for some
"of these statements, will my friend be good enough now to
"outline for the information of the Commission and certainly
"to assist me, because I was of the opinion that this was
"what you were submitting in answer to the matters which the
"Commission called us together for some time in the early part
"of April, will you be good enough now to outline what you
"may propose to do, may I put it in the form of a question,
"do you propose to have the Imperial Oil submit a statement
"of the capital investment in, and the operating costs of,
"the loading facilities presently in use in the Imperial
"Oil Refinery in East Calgary and then generally would you
"mind outlining what evidence you propose to lead in this
"phase of the Inquiry?

"MR. NOLAN: It is really not evidence that I
"propose to lead, sir; it is a statement that I propose to
"make on behalf of the Imperial Oil, having regard as I say,
"to the ownership of these facilities and to the questions
"which were asked of us when this Commission resumed its Hear-
"ing on the 8th or 9th day of April last. Now it has been
"shown in the evidence this morning that the British American
"Company have a direct line from the trunk pipeline to their
"refinery.

"THE CHAIRMAN: Are you through with this witness?

"MR. NOLAN: No, we are not, sir.

"THE CHAIRMAN: Will you just sit down for the
"moment then, Mr. Coultis.

"MR. NOLAN: But I may go on.

"THE CHAIRMAN: Yes.

"MR. NOLAN: And that through this direct line
"to their refinery the British American Oil Company will take
"not only their Calgary requirements but their Moose Jaw re-
"quirements from their refinery there. I understand that
"they are, the British American is equipped to do their
"own loading and the shipping of their Moose Jaw require-
"ments. The Imperial Oil, as we know, is in the same pos-
"ition and will take through their direct connection with
"the pipeline, their requirements for the Calgary and Regina
"Refinery and do their own loading and shipping of their
"requirements for the Regina Refinery. That much seems to be
"clear. Now the question arises as to the loading of
"these tank cars----

"THE CHAIRMAN: Mr. Plotkins says that he
"apparently is prepared to do the same and those are the three

"refineries we have been talking about.

"MR. NOLAN: Yes, the three we have been talking
"about . Now the point arises as to the question of the dis-
"posing and handling of the oil required by other people in
"what we call 'tank cars' and our estimate is that this will
"probably average about a 1,000 barrels per day, that it will
"not be taken evenly because of seasonable requirements and
"that the major portion of it will move in the harvest and
"sowing season and then will probably not exceed a volume of
"4,000 barrels a day. Now, there are two ways this can be
"handled, by the Royalite or by the Imperial. So far as the
"Royalite is concerned, I have nothing to say about that at
"the present time. The evidence went in this morning of
"what it would cost in capital expenditure to create or to
"divorce, let us say, these terminal facilities from the
"Imperial Oil Refinery.

" Now, turning to the question
"of the Imperial Oil, we know from the evidence, Sir,
"that the Imperial Oil has to-day the facilities necessary
"for handling this business in addition to their own
"requirements, and that such movement would represent,
"roughly, in our opinion, about one-fifth of the daily
"movement through their equipment. In other words,
"their own requirements are about four-fifths of what
"goes through. I am authorized by the Imperial Oil
"Company to say that they make the firm offer to the
"Royalite Company to perform for Royalite the loading
"and shipping services of this movement of outside oil
"at the rate of 2 cents per barrel. There is one thing

"has to be said about that. The Royalite in passing
"this charge on to its customer would be obliged to add
"something for the loss in the volume in the process of
"the loading; We will have some evidence adduced as to
"the probabilities of there being loss in the process
"of loading. This additional charge would be approximately
"one-half per cent, roughly, or an estimated depreciation
"of from one-half to three-quarters of a cent per barrel.
"There would also have to be rental paid for the requisite
"storage for this operation by the Royalite Company.
"In computing this 2 cent charge the Imperial takes into
"consideration the fact that the cost of the service and
"the fixed charges run evenly throughout the year and
"that the loading charge or cost applies only when the
"cars are being loaded. For example, not in the winter
"season. We have taken into consideration that fact in
"fixing and arriving at this figure. Now, the benefit
"of having this service done by the Imperial is that the
"cost of doing it is lowered by reason of the larger
"volume handled, which is the point that has been coming
"up constantly. It is all predicated upon one condition,
"this offer of Imperial to Royalite. We decline to
"perform this service if as a result our loading facilities
"should become in any sense a public utility. We make
"this offer as a private corporation willing to do and
"perform this service for that amount but not as a public
"utility. Now, these loading facilities, Sir, are
"primarily and principally for our own use and the service
"which we offer to the Royalite is merely evidence of
"an effort on our part to meet a situation which is here

"before this Commission in what we consider to be a
"practical and a very economic way. We do not feel this
"Commission desires, in view of what we are offering to
"do, to make the loading facilities of the Imperial Oil
"a public utility, any more than they would want to make
"the loading facilities of the British American Oil
"or of the Lion Oils a public utility, because these
"people, these companies, have erected and have used
"these facilities for their own private use. I do not
"think any good purpose will be served by making anybody
"a public utility because we think that the offer is
"fair and one that meets the situation and meets it
"properly. If that is not acceptable to the Commission
"the only thing we can do is to turn again to the
"evidence that has been adduced to-day on behalf of
"the Royalite Oil Company as to what it would cost
"them if it is asked to perform that service. Another
"interesting point which came into discussion this
"morning was that it is evident from the figures that
"have been adduced on behalf of the Royalite Oil Company
"to-day that purchasers of crude would cease to buy from
"the Royalite and would purchase their crude either from
"the Imperial or from the B. A. or from the Lion. So
"that even if the Royalite did erect these terminal
"facilities which have been referred to to-day and it
"would be required to load the requirement other than
"those of the Imperial Oil and the British American, it
"is our opinion that the purchasers of the crude would
"avoid its use on account of the extra cost. In other
"words, such purchasers would much prefer to buy crude

"from the Imperial, the B. A. or the Lion, the Lion Oil
"in turn to do the purchasing direct from the Royalite
"and receive the oil purchased through their direct
"connection.

Turning for one moment to the question of tank trucks, what we say about that is this, that the amount of crude oil which would be taken away in tank trucks would probably not average more than 100 barrels a day, even if it reached that amount. Those facilities would necessarily have to stand idle throughout a great part of the year and would only be used to their full extent during the sowing and harvesting season. Now, as we have seen, this Imperial Oil Company is already equipped for tank truck deliveries of what are known as 'white products', and could, we believe, with small expense, take care of this additional item of the crude business. But again, any offer that we make is on the ground and on the terms that we are not subjected in our tank truck operations to public utility control for this small and unattractive service to Royalite, which would be required for these tank truck deliveries.

" Now, then, Sir, by reason
"of the facilities which we already have, we are prepared
"to render this tank truck loading service for $7\frac{1}{2}$ cents
"a barrel. Again I say, if that is not acceptable to
"the Commission, it might be necessary to turn again
"to the evidence that has been adduced on behalf of the
"Royallite this morning as to what the cost will be if
"it is necessary to create these new facilities. Very

"simply the point is this, we feel that we, having
"these facilities at the present time, and having erected
"them for our own use, and using them to a very large
"extent ourselves for our own requirements, are in a
"position to make a very attractive offer to the Royalite
"for this service, and we are prepared so far as tank
"cars are concerned to perform it for 2 cents a barrel,
"which, of course, in comparison with the figures that
"were adduced this morning, show it is very reasonable
"as compared with this. Again, so far as the tank trucks
"are concerned, we are prepared by reason of the
"facilities which we already have and the volume which
"is handled on account of the Imperial Oil, to agree to
"perform that service for $7\frac{1}{2}$ cents a barrel. Provided
"always, as I said before, that we are left in the
"position which we were in before this Commission
"began its sessions, as a private company. We make
"this offer as a private company, and it is not an
"offer which we will continue to make if there is
"any intention or desire on anybody's part to make the
"Imperial Oil in respect of its facilities in the East
"Calgary a public utility. We do not think it is
"practical. We do not think it is economic to do it.
"We do not think it can be done because of the practical
"difficulties of dividing up these facilities which
"exist there now as between, if you like, a public utility
"on the one hand and a private corporation on the other.
"We hope that there will be no necessity of imposing
"public utility control upon us in view of the offer
"which we are now making.

"THE CHAIRMAN: Mr. Nolan, do you mind just
"elaborating for our benefit why you think the Imperial
"may decline to become a public utility at its own behest
"any more than Royalite, or any other company that is
"made a public utility?

"MR. NOLAN: We do not think that the
"operation is such that it can be severed in such a way
"in the East Calgary yards as to make it practical that
"one portion of the operation should be a public utility
"and the other portion not a public utility.

"THE CHAIRMAN: Then, had you divided up
"the operation of the common carrier amongst more of
"your integrated companies it would be impossible to
"make anyone a public utility because it was not per-
"forming the complete service. That is to say, if
"North West or Dalhousie were doing the gathering and
"the Royalite the transporting and the Imperial the
"delivering would you think on that account the public which
"might, in someone's opinion, not be properly protected
"without this whole operation being made a public utility,
"could be denied on that account?

"MR. NOLAN: No, I think if the North West
"Company was doing the gathering of this oil we would
"direct our attention to the entire situation that
"surrounded the North West Company and, perhaps, you would
"decide it was to be a public utility. I am saying that
"we are prepared to do these things if we are not made a
"public utility.

"THE CHAIRMAN: Quite so. I understood you
"to say that and that is why I was questioning you now.

"I hope I am not interrupting you.

"MR. NOLAN: Oh, no.

"THE CHAIRMAN: I understood you to say your
"company, the Imperial, would decline to perform the
"service, and I am asking you to tell me on what ground
"they have the right to decline?

"MR. NOLAN: What I say is this, that we
"are making this offer at these amounts. That is the
"offer made by us in our capacity as a private corporation.
"If there is to be a public utility, an effort made to
"make us a public utility-----

"MR. FRAWLEY: Or if it has already been
"done.

"THE CHAIRMAN: As the case may be.

"MR. NOLAN: As the case may be. Then, of
"course, there is, perhaps, a larger field we have to
"explore as to what the rate should be.

"THE CHAIRMAN: It may be that there be
"some legal ground for saying that any recommendation
"of ours to the effect that the Imperial, that has to
"do with the delivering end, shall we say?

"MR. NOLAN: Yes.

"THE CHAIRMAN:- Of this operation of a common
"carrier, there might be some reasonable ground for saying
"it cannot be made a public utility, If there is then
"we will be naturally interested to hear what it is,
"if you care to argue it here. At the moment we enter-
"tain the view that whether it be one company or two or
"six they should all be controlled by the Public Utilities
"Board so long as they are performing the services of

"a common carrier in any part. That is to say, that the
"division of the labour of common carriers between
"integrated companies should not preclude them from
"becoming public utilities, controlled by the public
"Utilities Board. We are anxious to hear all views,
"either for or against that. At the moment you will
"bear in mind that by an interim report we have, I
"thought, made it quite clear that we think the delivery
"should be controlled just as surely as gathering and
"transporting. If we have not made it quite clear we
"undoubtedly will before a great time. What we had
"in mind, Mr. Nolan, was that unless you are able to
"defeat that recommendation, if acted upon, in the
"courts of this country or otherwise, unless you are,
"was that it was proper to give you an opportunity of
"saying 'Now, then, you have made the delivery end a
"public utility, but having done that you should in
"fairness take into account what our capital involved
"in it is; what the operating costs in connection with
"it are', and in order that there should not be, in
"our opinions at least, anything done that was unfair
"we provided that opportunity. It is for you entirely
"to say 'We offer you a brand new set-up for Royalite
"and we stop right there', or to call evidence along
"the lines that we have indicated we are very willing
"to hear.

"MR. NOLAN: My hope was that in view of
"this offer which is being made it would not be necessary
"to go into the question of what the capital costs of
"the Imperial Oil facilities were or to consider them in

"any way in the light of a public utility.

"THE CHAIRMAN: Quite, Mr. Nolan, but, after
"all, we are only being at some pains to be sure that you
"are not in the dark about this so far as our thoughts
"are concerned, you understand. We hear all you have said.
"You take your own risks in not giving any more evidence
"that we will find on, so far as our recommendations go.
"I mean we are not receiving offers, if you know what I
"mean. We are willing to consider as to whether your
"proposal is one that should be included in a recommenda-
"tion. But you stop there at your peril. We have
"provided the opportunity of your showing the other.

"MR. NOLAN: The other being the capital
"invested in these facilities.

"THE CHAIRMAN: The usual thing within a
"smaller margin.

"MR. NOLAN: That evidence has not been
"made available to me. I do not know whether it arose
"in the discussions which my friend had in Toronto or
"whether it did not. I can again communicate. We
"are not going to lose any time.

"THE CHAIRMAN: Well, Mr. Nolan, I think it
"has been quite clear from the beginning, we did not
"offer you a month to make an offer to the Royalite in
"our presence, but rather to see what you could set up.
"This is very rough, it is true, but it is quite clear
"what we wanted to know about the terminal facilities
"was how much you needed, what capital cost was involved,
"what are the facilities required to properly deal with
"the terminals and what the expense would be in operating.

"Roughly put though it is true but that is what it was.

"It makes quite clear what we hoped to hear evidence about.

"It is for the Imperial to say that they do not choose

"to adduce that evidence if they want to, but as long as

"you understand as their counsel that we have provided

"the opportunity. We do not coax for evidence.

"Anything more of Mr. Coultis?"

Following upon this discussion the carrier company introduced two statements as to tank car loading and truck loading, Exhibits "244" and "245", which in some measure dealt with capital and operating costs in connection with terminal facilities. The witness, C. M. Moore, who introduced these Exhibits, did not prepare them, was unable to break them down in all particulars or to verify the accuracy of them. We consider that the Exhibits mentioned are in the circumstances of no value to us and were it not for the fact that we later had the advantage of hearing evidence from Mr. Hull, a witness introduced by the British American Oil Company and Mr. Naylor, a witness called by the carrier companies, we might have been forced to deal with terminal questions in a way that might not have been pleasing to the carrier companies. These two witnesses made it quite clear that the storage space now rented and that the storage space for the future suggested by the witnesses Moore and Coultis was much greater than should be needed as terminal storage by the carrier companies as carriers and what is of greater importance gave their views as to what a proper all-inclusive service rate for terminal deliveries into tank cars and tank trucks should be.

Mr. Hull has had long and wide experience in connection with the transporting of oil. We quote from his evidence the following:

" Q Are you familiar with what might be the customary rate for the service, what we would call the loading service in tank cars, in addition to the regular pipeline rate?

" A Yes, the customary rate at the present time has been for a number of years is $2\frac{1}{2}$ cents a barrel.

" Q Just what does that include, Mr. Hull?

" A That includes, that is the total charge for storing temporarily, temporary storage of the oil, and when I say temporary I mean a matter of a week or two weeks and the loading of the oil into tank cars or tank trucks.

" Q Would that include any loss in those operations?

" A Well not so far as the shipper is concerned, the shipper pays the $2\frac{1}{2}$ cents and gets all of his oil loaded.

" Q In that $2\frac{1}{2}$ cents would it include any loss that the pipeline as loaders take in that operation?

" A Yes, in other words, whoever performs the terminal services are responsible for any losses incurred and have to absorb it themselves.

" Q And that $2\frac{1}{2}$ cents is considered ample to look after that as well as other services?

" A That is correct. I am qualifying that by saying that is the general practice. There may be instances of some private agreement of which I have no knowledge where the shipper agrees to stand some loss. I am not sure. That is on terminal storage.

" Q That is generally recognized practice?

" A That is generally recognized practice.

" Q Would you think that would possibly be the fair one under
" the circumstances as you understand them here, in this
" system?

" A I think so."

While Mr. Naylor thought, without having very strong views about it, that there should be a greater charge for truck loading than for tank car loading he accepted Mr. Hull's views as being reasonable with respect to tank car loading.

"We are prepared to accept the evidence which Mr. Hull has given and which we have before quoted and to recommend that the carrier companies be allowed a service rate of $2\frac{1}{4}$ ¢ per barrel for loading into tank cars and into tank trucks. We would also recommend that it be directed that all necessary facilities be provided and an adequate service given at this rate. The rate proposed is distinct from the rate which we have recommended as a proper rate for gathering and transporting.

Before leaving the subject of terminal facilities we may say with regard to Mr. Nolan's offer before quoted that it seems to us to matter not at all whether the business of a common carrier is done by one company or several of the integrated companies with which the carriers are concerned. It is important in any event that the complete operations and those companies who are conducting the operation so far as the operation is concerned should be under the control of the Public Utilities Board. If it should transpire that the Royalite Company becomes possessed of all utilities and facilities for carrying out of the functions of a common carrier which in our view includes not only gathering and transporting but also delivery, then in that event we would expect that the Public Utilities Board would only be concerned with the regulation of that company. As that is not the present situation we do not make any recommendation with respect thereto.

With regard to the much discussed connection between the trunk line and the Lion Oils Refinery and the British American Oil Company's Refinery we may say that at first we were inclined to lay it down, insofar as our recommendation might do so, that a refinery which sought a connection with the trunk line of the carrier companies should in any event make that connection at its own expense. After hearing the evidence of Mr. Hull and after further reflection we have come to the conclusion that each refinery connection must be dealt with as a matter apart and be decided according to ordinary business principles that is to say if it appears that the refinery is financially responsible and that the volume of its oil requirements is such as to make it good business in the circumstances to effect the connection then the connection should be ordered to be made. In such case we think the carriers should pay for the making of the connection from the trunk line to the storage tanks of the refinery and that this line should be their responsibility and under their control and that the operating cost of putting oil into the tanks at the refineries should be part of the general rate for gathering and transporting.

The connection with the British American Oil Company has already been made. With regard to the Lion Oil Refinery we are of the opinion that the probable volume of oil to be transported is such that the connection with the trunk line would have been made before this if the sole determining factor were whether or not it was good business from the standpoint of a carrier company to make this connection and we recommend that it be directed that this connection be forthwith made, and that an adequate service be provided subject to this that the carrier companies shall not be required to deliver less than that which the witness Hull says is a reasonable minimum namely 3000 barrels at one time.

We think that we have made it clear but for the sake of certainty we now state that it is our recommendation that the capital cost involved in making the trunk line connection with these two refineries is to be borne by the carrier companies and that for the reasons before given no increase in the general rate of 9 $\frac{1}{4}$ ¢ per barrel be allowed in respect of capital investment or operating cost because of these refinery connections.

Aside from proposals by the Carrier Companies we have no evidence before us which would justify us in making any recommendation as to the general conditions, rules and regulations under which this pipe line system should be operated while under the control of the Board of Public Utility Commissioners. This is not a criticism of Counsel; we think it is fitting that the Board that has to do the regulating should prescribe its own regulations and in the main be untrammelled by suggestions from us. That there should be regulations and conditions imposed insofar as necessary to make effectual regulatory control, is of course, recommended.

It is to be remembered that all of the findings and recommendations which we have made are made upon the evidence now before us and are made with the knowledge that the Carrier Companies will hereafter be under the control of a regulatory body, the Board of Public Utility Commissioners for Alberta, and that that body may, and doubtless will from time to time make new rulings as new conditions arise or as experience teaches.

We recommend that regulations be framed, that a proper accounting system be set up, that the rates recommended be imposed, and that so far as may be consistent with ordinary business prudence, the rates imposed and the conditions fixed remain in effect for one year, so that the Board may have before

it the result of the pipe line system's operation, disassociated from all other operations, over a period which takes in all seasons of the year. It is hoped that the Board will not then have the difficulties which we have encountered in connection with the mixed-up accounting systems of integrated companies. Furthermore, if our rate base is accepted the Board will not be faced with the perplexities and uncertainties in connection with further rate making which have confronted us on the evidence given in this Inquiry.

Since monopolistic abuses have been suggested and since the number of wells under contract to the Carrier Companies and to the British American Oil Company has been the subject of comment we think it only fair that we should not conclude this report without referring to a statement of policy made by Mr. Nolan, Counsel for the Carrier Companies, and on the assumption of a separate terminal rate as now recommended for tank car and truck loading concurred in by Mr. Harvie on behalf of the British American Oil Company.

Mr. Nolan's statement is as follows:-

"THE CHAIRMAN: Mr. Nolan, have you received instructions as to the statement you were to make?

"MR. NOLAN: On the question of policy, yes, I have, and may I give it to you now, Sir.

"THE CHAIRMAN: Please.

"MR. NOLAN: The policy I am instructed to enunciate is that it is contemplated to sell crude to any bona fide purchaser such surplus of crude as we control and which may not be needed for our own Imperial requirements at what we call the average weighted tank price, based on the posted field price and subject to the trans-

"portation, delivery and handling charges and regulations
"fixed for the pipe line, provided that the purchaser make
"satisfactory financial arrangements for payment.

" I am also instructed to say that this
"policy should not be regarded as a hard and fast one, and
"without limit as to time, but as being subject to revision
"to meet conditions as they arise, although at present we
"see no reason for deviation. Otherwise we would, in our
"opinion, be discriminated against as being tied to a stated
"policy while other owners or producers of crude remain foot-
"loose.

" Now I think that is what the Com-
"mission would have from me, because in the first instance
"I talked about the posted field price, transportation
"charges and handling charges, and the Chairman put it to
"me the other day "Is there any change in that". Well you
"see, Sir, there is a slight change but it is in connection
"only with the price to be paid in the field, and this state-
"ment of policy says that we are prepared to pay the average
"weighted tank price based on the posted field price. Now
"that is a new element. I understand there was some dis-
"cussion about it in the East and I think both my learned
"friend Mr. Frawley and Mr. Cottle are familiar with it.
"There is no difficulty about it at all, and perhaps I
"can explain it to you. The purchasing company or com-
"panies will continue, as in the past, to pay the pro-
"ducer of oil for the oil at the particular gravity at
"which it is produced. That thing which he produces he
"gets paid for and then the idea is that the purchasing
"company or companies will place in common tankage all

"crude produced, and determine the average price by dividing the number of net barrels for which the pipe line is responsible for delivery to Calgary into the total money paid for those total barrels covering purchases made each month, thus arriving at an average price in the common tankage in Turner Valley, and in order to make it clear, if I was to be asked to explain it, I have prepared just a brief statement which may be of some assistance to the Commissioners.

"MR. FRASER: We might mark it as an exhibit.

"MR. NOLAN: It need not be an exhibit. This is to explain what I have been calling, sir, "the weighted average price" of the Turner Valley crude. You will observe in the left hand corner the gravities, and they vary of course as to the oil produced by the producer and then there are the certain number of barrels for which the pipe line company is responsible. Now each of those gravities, take the first one, the 40 gravity, has a certain price per barrel according to the prices which are posted, and so for those 40 barrels we would have, rather these 99 barrels of 40 gravity, there would be a price of \$1.14, and we carry out into the final column the total amount for all of those barrels at that price per barrel, and then, Sir, we add together the total number of barrels and divide into the total number of dollars and cents represented by the price of those barrels having regard to their particular gravity and we get down to the bottom, the figure of \$3,381.84 divided by 2772 barrels, which gives us the weighted average price of Turner Valley crude, and that is what is known as the weighted average price.

" Now it is said to me, or my instructions are, that this is a very fair way of doing it, and that it is one that should work out, so when I make the statement as to policy I have to begin not with the posted field price but with this weighted average price of Turner Valley crude. That is the only deviation.

"MR. FRAWLEY: Yes, but Mr. Nolan, there is a very good reason why your Company has instituted this and you might tell that.

"MR. NOLAN: The reason is to get rid of this difference in gravity and to bring them all down to a common denominator, of a common average in the field, and it gets rid of the difficulty that exists by reason of the difference in gravity of the different oils produced.

"MR. FRAWLEY: It was pointed out to me that you might be selling to the British American Oil Company and taking a loss which would seem to be unwarranted by virtue of the fact that the gravity had gone down. You had probably paid for the oil on the basis of 43 gravity and when you were turning it over to the British American it was 42, and you would only be paid for 42, and so this scheme was worked out, which Mr. LeSueur said was in vogue in the Mid-Continent field as being the fair way to sell the oil, keeping always to the same method of purchasing at the particular well gravity.

"MR. NOLAN: That is perfectly clear, that the man who produced the oil at the well gets for his oil whatever the gravity demands he should get.

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"THE CHAIRMAN: I think we will mark this, Mr.
"Nolan.

STATEMENT PRODUCED HERE MARKED
AS EXHIBIT "252".

"MR. NOLAN: And it is pointed out to me
"under this scheme each refinery will be paying precisely
"the same price and there will be no difference in the
"price paid.

"MAJOR LIPSETT: Your present posted field price
"is based on 43 gravity, \$1.20 is the posted field price.

"MR. FRAILEY: No, there are 10 posted field
"prices, the posted price is a schedule.

"MR. NOLAN: Varying 2 cents for each dif-
"ference of 1 degree in gravity.

"THE CHAIRMAN: And your statement varies also,
"does it not, Mr. Nolan, in that you will, I think, very
"properly change it to say that you will deliver not just
"at the present handling charge, but at the charge that
"may be fixed in respect of handling, whether in the
"whole rate or not, by a body competent to fix it.

"MR. NOLAN: Subject to whatever transporta-
"tion, delivery and handling charges and regulations which
"are fixed.

"THE CHAIRMAN: Yes.

"MR. NOLAN: That is what you, the Chairman,
"wanted from me.

"THE CHAIRMAN: Yes, I think that is it, that makes
"something quite clear that is important."

The exhibit "252" referred to in the foregoing statement is as follows:-

ROYALITE OIL COMPANY LIMITED

METHOD OF CALCULATING THE WEIGHTED AVERAGE PRICE
OF TURNER VALLEY CRUDE OIL.

<u>Gravity</u>	<u>No. Bbls.</u>	<u>Price per Bbl.</u>	<u>Amount</u>
40	99	1.14	112.86
41	198	1.16	229.68
42	297	1.18	350.46
43	396	1.20	475.20
44	495	1.22	603.90
45	594	1.24	736.56
46	<u>693</u>	<u>1.26</u>	<u>873.18</u>
	<u>2,772</u>	<u>1.22</u>	<u>3,381.84</u>

This report is of necessity somewhat lengthy since its preparation involves a review of a record of over 7,000 foolscap pages and a consideration of more than 250 Exhibits. For a proper understanding of this report it, of course, must be read as a whole but for ready reference we have prepared the following summary:

SUMMARY

1. We have found that it is the proper function of a common carrier of oil by pipe line not only to receive and to transport but also to make delivery.
2. We have found that the operation of gathering, transporting and delivering is in part being performed by the Royalite Oil Company Limited and in part by Imperial Oil Limited.
3. We have recommended that the Legislature of the Province of Alberta be invited to declare that the Royalite Oil Company Limited and Imperial Oil Limited are and shall be deemed to be common carriers in respect to the gathering, transporting, and delivering of petroleum and petroleum products by pipe line between Turner Valley and Calgary. This declaration has been made and so no question can arise as to these companies being subject to the laws of the land relating to common carriers in connection with all pipe line activities.
4. We have found on the evidence before us that it is fit and proper that these two companies as such common carriers and all of their assets whether used for other purposes or not, which are used in connection with the gathering, transporting and delivery of oil be placed under

the regulation and control of the Board of Public Utility Commissioners for the Province of Alberta.

5. In thus recommending administrative control in an economic sphere we have pointed out that this does not involve the destruction of the fundamentals of private enterprise or of individual initiative and that proper administrative control does not lead to the refusal of fair financial rewards to those whose property is declared to be a public utility for public use. We have also pointed out with equal emphasis that on the other hand the business of Common Carriers is in its nature of such a character as to be of public concern and so the public are entitled to expect that unfair and discriminatory practices, if any, will be stopped and that rates will be so regulated as to prevent improper charges being made for the services rendered.

6. We have found that the accounting now done by the Carrier Companies insofar as it touches pipe line activities is inextricably mixed up with accounting relating to other enterprises. We have recommended that a new accounting system be set up in accordance with specified requirements of the Board of Public Utility Commissioners of the Province of Alberta; that these accounting records be kept separate and distinct from the records of all other activities of the Carrier Companies and that these accounting records be made available for inspection in the Province of Alberta at all times hereafter. We have further recommended that all of the foregoing requirements should be insisted upon on pain of the cancellation of the existing pipe line permit.

7. In the absence of evidence of abuses which may not be fully met by administrative control we have recommended

the continuance of private ownership with public regulation in respect of the pipe line activities of the Common Carriers. We have made this recommendation because in our opinion public control of Common Carriers which assures a fair measure of managerial freedom is to be preferred to either unrestrained private ownership on the one hand or public ownership on the other.

8. We have been at some pains to point to the difficulties involved in arriving at a rate to be recommended which will give a fair return upon the present value of an efficient and economical pipe line system and which will at the same time be such as to insure to the public that no more is required to be paid for the service rendered than that service is reasonably worth.

9. We have enumerated the different measures of value commonly used for rate-base purposes and we have discussed at some length the respective merits of the original cost and reproduction new less depreciation methods of approach in determining value for rate-base purposes.

10. For reasons which seem to us sufficient and which we have set forth at length we have come to the conclusion that at least in the case of an utility which is brought under the control of a regulatory body for the first time, it is only just and equitable that original cost should be discarded and that present value should be accepted for rate-base purposes.

We have accepted the method of determining present value known as the replacement new less depreciation method.

11. We have added a rider to the effect that if it had been shown to our satisfaction that a substitute system

of equal capacity, efficiency and durability would cost less than the amount of the depreciated value of the present system we would have had to consider how far replacement value should be reduced for rate-base purposes so as to provide a service rate that was no higher than the service was worth when measured by the rates which obtain in competitive fields for a like service.

12. We have found that on an estimated "throughput" of six million barrels per year the life of the Turner Valley Oil Field may be conservatively estimated to be at least eighteen years. As the life of the field is of importance in determining present values and is, we think, a matter of great interest to the public, we have made an exhaustive examination of the evidence of the witnesses and have given our reasons for coming to this conclusion.

13. Since the estimated life of the field is predicated upon the assumed "throughput" of six million barrels per year and upon the efficient operation of the field, we have examined the evidence with regard thereto with great care. We have found that we may unreservedly accept the evidence of the Honourable the Minister of Mines for Alberta to the effect that it is the policy of the Government of Alberta to pursue conservation methods in conformity with the best expert advice obtainable with a view to getting the greatest possible ultimate recovery from the oil field. We have also found on the evidence that the assumed "throughput" of six million barrels per year, which is based upon the experience of 1938, is a safe estimate of the "throughput" for the future.

14. We have examined at some length the reasons advanced for the rejection of this estimate of the

"throughput". As to the suggestion that it may prove difficult to obtain capital necessary for drilling operations to produce oil in quantities equal to the 1938 volume and the further suggestion that the discovery of other oil fields in which oil can be obtained from shallow wells at less cost than in the Turner Valley field may have the effect of stopping drilling operations in that field, we think that these suggestions are fully met by the evidence of Dr. Boatright to the effect that the experience of the past shows that wherever there has been a real oil field its development has not been prevented by lack of capital or by the existence of other fields in which oil wells can be drilled at less cost.

As to the suggestion that the activities of the Conservation Board of Alberta may reduce the throughput in the future below the 1938 experience, we have accepted the evidence of Mr. F. G. Cottle of the Conservation Board to the effect that it is to be anticipated that control by the Board will have the effect of increasing rather than decreasing the throughput in the future.

As to the suggestion that a competitive pipe line may be put into operation, we have found that there is no evidence to show that another line is in contemplation and that this is, in any event, a matter within the control of the Board of Public Utility Commissioners of Alberta who, before granting a pipe line permit to a competitor, would doubtless consider as to whether or not a second line would have the effect of unnecessarily duplicating capital investment and operating costs or would so reduce the "throughput" of the present system as to bring financial

disaster without a service rate which the users of the lines should not be called upon to pay.

As to the suggested risk of reduction in the "throughput" because of poor crops, while recognizing that crop conditions will affect "throughput" either by increasing it or reducing it, as the case may be, we have pointed out that this is one of the hazards of the enterprise that cannot be avoided and which is taken into account in fixing rates which would not be allowed in connection with an enterprise whose annual returns were sure and certain.

As to the suggestion that the "throughput" will be reduced because the Western Canada market will be lost to foreign competitors and in particular those in the Illinois field, we have found that it has not been established before us by reference to long term contracts or otherwise that present competition from the Illinois field is anything more than the result of uncontrolled flush production. We have pointed out that we are satisfied upon the evidence that even allowing for all reductions in market requirements suggested by the major companies because of foreign competition that the "throughput" for the year 1939 will be as great if not greater than that of 1938. We have also pointed out that, in our opinion, the "throughput" will be pretty much what the Imperial Oil Company wants to make it and that if it is the unalterable policy of that Company to do everything that is economically sound regardless of its effect upon the pipe line system, as suggested by an officer of that Company in the witness box, then it may be thought that in due course the Company will post a field price for

crude oil at which no independent producer could afford to produce oil. This, of course, would result in the Turner Valley field being taken over by the Carrier Companies with or without other major companies in the absence of Government intervention. As to this we have said that on the evidence before us as at this date we are not prepared to hold that these Carrier Companies in their character of producers and buyers of oil will be ruthless in their operations or that the "throughput" will be reduced by them to the disadvantage of the Turner Valley Field.

15. We have discussed at some length various methods of measuring depreciation and after rejecting the observation method we adopted the straight-line useful life method in measuring the accrued depreciation to be deducted from replacement values in order to determine the present value for rate-base purposes.

16. We have explained how we have applied original cost figures so as to get accrued depreciation as at this date based upon present value as distinguished from original cost.

17. After making all allowances which, in our opinion, are proper in respect to the various items before mentioned as properly constituting the rate-base, we found the rate-base to be \$1,582,984.04, made up as follows:-

Pipe line equipment at replacement valuations	\$1,380,663.00	
Administration and overhead during construction		<u>138,066.30</u>
		\$1,518,729.30
Less depreciation		<u>171,008.92</u>
		\$1,347,720.38
Utility and service assets	\$186,000.00	
Less depreciation	<u>59,369.34</u>	<u>126,630.66</u>
		\$1,474,351.04
Land and rights of way		18,633.00
Working capital		<u>80,000.00</u>
Rate-base as at December 31st, 1938		<u><u>\$1,582,984.04</u></u>

18. Having found what the rate-base should be we were next concerned to find what rate of return should be applied to the amount of the rate-base. After giving due consideration to the evidence of all witnesses who spoke as to this we came to the conclusion that we must refuse to give effect to the evidence of the witnesses called by the Carrier Companies who suggested a rate which, in our view, was much too high; we also came to the conclusion that the ten per cent rate of return which Dr. Boatright suggested in evidence was too high. In our opinion a return of $9\frac{1}{2}$ per cent upon the amount fixed in the rate-base as the present depreciated value of property used and useful in public service would provide a fair rate of return. It is our recommendation that this rate of return be fixed.

With a rate-base of \$1,582,984.04 this rate provides an annual return of \$150,383.48 or 2.506 cents per barrel on an annual "throughput" of 6,000,000 barrels.

19. Having fixed upon the rate of return there remained for consideration an estimate of probable operating expenses including future depreciation over the period of the estimated life of the oil field at the estimated "throughput" and the establishment of a service rate or rates which having regard to the estimated "throughput" would provide a gross income sufficient to cover all operating expense, including depreciation and yield the return before mentioned when applied to the rate-base before mentioned.

20. We pointed out in this connection that in providing for depreciation in the future we have in mind an allowance in operating costs to provide for the impairment of capital which goes on steadily regardless of repairs and replacements and exhausts the capital amount less salvage at the end of the estimated life of the field.

21. We found that the operating expense based on a "throughput" of six million barrels per year amounts to \$169,360.00 for direct operating costs, \$1500.00 for losses on sales and retirements and \$56,280.00 for administration, utility and service expenses. These operating costs are in the main based on the 1958 experience.

22. We have included income tax based on the annual return of \$150,383.48 which at a tax rate of 22 per cent of income before deducting tax amounts to \$42,415.85.

23. We have estimated on the evidence that an annual sum of \$69,500.00 should be provided out of the service rate for the amortization of future capital expenditures.

24. We have computed annual depreciation for the remaining life of the pipe line assets on the basis of the amortization by the straight line method of all depreciating assets by December 31st, 1956, with an allowance for salvage value of five per cent of the undepreciated replacement value included in the rate base. The annual depreciation on this basis is as follows:-

Pipe Line assets	\$70,654.66
Utility and service assets	<u>6,573.92</u>
	<u>\$77,228.58</u>

In the result we find the service rate necessary to meet all operating costs and to provide a return of $9\frac{1}{2}$ per cent per annum on the rate base is 9.428 cents per barrel as shown by the following tabulation:

	<u>Annual Amount</u>	<u>Amount per Barrel</u>
Direct pipe line operating expenses	\$168,360.00	2.806¢
Losses on sales and retirements	1,500.00	.025
Administration, utility and service unit expenses	56,280.00	.938
Income Tax	42,415.85	.707
Allowance for capital expenditures not to be added to the rate base	<u>69,500.00</u>	<u>1.158</u>
Total annual expenditures before amortization	338,055.85	5,634¢
Amortization:		
Pipe line assets	70,654.66	1.178
Utility and service assets	<u>6,573.92</u>	<u>.110</u>
	\$415,284.43	6.922¢
Return on investment	<u>150,383.48</u>	<u>2.506</u>
Rate	<u>\$565,667.91</u>	<u>9.428¢</u>

25. Having regard to all of the foregoing we have found that the service rate now in force of 15 cents per barrel for gathering and transporting should be reduced and we have recommended that in lieu thereof a service rate of $9\frac{1}{2}$ cents per barrel be allowed for the movement of petroleum or petroleum products whether from the wells, absorption plants or elsewhere in the Turner Valley Field to refiners' storage tanks and terminal storage tanks in Calgary.

26. As one of the factors to be taken into account in connection with the pipe line "throughput" is the cost of transporting oil from the end of the pipe line to available markets we have noted that the freight rate for transporting oil from Regina in an easterly direction is greater for a lesser distance than is the freight rate for transporting oil from Fort William in a westerly direction. While this is a matter within the jurisdiction of the Dominion Railway Board we have pointed out to those interested that this seemingly extraordinary situation may be brought to the attention of the Dominion Railway Board by anyone interested.

27. We have found that losses of petroleum and petroleum products at the terminal will be amply taken care of in the rate which we have recommended to cover terminal loading of tank cars and tank trucks. With regard to all other losses of crude oil whether covered by the present deduction of one per cent of oil handled or not, we think that the experience of the past shows that a deduction of more than $\frac{3}{4}$ of 1 per cent should not be allowed and we have recommended accordingly. We have not recommended a reduction in the present deduction with respect to absorption gasoline and naphtha losses.

28. With regard to pipe line terminals, thanks to the introduction of the witness Burton E. Hull by the British American Oil Company, we were able to come to a conclusion as to the proper service rate to be allowed for the service rendered in the loading of tank cars and tank trucks. We have accepted the evidence of

this witness which is to the effect that the customary rate in the United States for this service is $2\frac{1}{2}$ cents a barrel and that this rate may be fairly applied to tank car and tank truck loading at the Calgary terminal of the carrier companies. The evidence which we have heard since the making of our Interim Report has persuaded us that it would not be proper to attempt to cover this service in the general rate. We, therefore, recommended that the rate of $2\frac{1}{2}$ cents a barrel be fixed for loading into tank cars, instead of the rate of 5 cents a barrel which is now in force, and we further recommended that a service not now given of loading into tank trucks be insisted upon at the same rate of $2\frac{1}{2}$ cents per barrel.

29. With regard to the connection between the trunk line and the tanks of the British American Oil Company's Refinery and the Lion Oils Refinery, we have found that the British American Company now has a service line from the trunk line to its Refinery tanks. We have recommended that a similar connection to Lion Oils Refinery be ordered if not forthwith made. We have recommended that all capital expenses in connection with these two Refinery connections should be borne by the carrier companies, that the connecting line be under the control of the carrier companies and that the operating costs of putting oil into the tanks of these refineries be a part of the general rate of $9\frac{1}{2}$ cents per barrel, which we have before recommended as the service rate for all services other than loading into tank cars and tank trucks. It is our opinion that the increased business will more than compensate the carrier companies for capital and operating costs in respect of these connecting lines. We have, however, provided in our recommendation, since a question has arisen as to the volume which

will pass through the connecting line to the Lion Oils Refinery that the service to that Refinery be upon the condition that the carrier company shall not be required to deliver less than 3,000 barrels at one time.

30. It was suggested in the course of the Inquiry that the "throughput" was lessened by reason of the contractual relation between the producers of oil and the major oil companies. It was said that those who were able and willing to market oil could not get oil from Turner Valley. In view of this we thought it proper to call upon the major companies who were before us to make a statement as to what their policy would be in the future with respect to selling crude oil. A statement made by Mr. Nolan, Counsel for the carrier companies, and concurred in by Mr. Harvie, Counsel for the British American Oil Company, is set forth verbatim in our report and serves to show that it is the present policy of these companies to sell crude oil to bona fide purchasers out of their surplus of crude oil over and above their own requirements; that this surplus will be sold on request at the weighted average price based on the posted field price and subject to the transportation, delivery and handling charges and regulations fixed for the pipe line provided that the purchaser makes satisfactory financial arrangements for payment.

31. We have pointed out that we have not attempted to make general conditions or rules or regulations with respect to the pipe line system because of lack of evidence and because we think that these should be made by the permanent regulatory body which will be charged with the responsibility

of seeing that they are made effective.

We desire to express our appreciation of the very able assistance given to us by Counsel and by Mr. F. G. Cottle, Accountant to the Commission, and by Mr. L. L. Plotkins.

All of which is respectfully submitted,

"A. A. McGillivray".

CHAIRMAN.

"L. R. Lipsett".

COMMISSIONER.

